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Promoting Positive Teacher-Child Interactions Through Implementation of a Social Emotional Learning Curriculum with Performance Feedback

Elizabeth S. Barker
University of Massachusetts Amherst

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PROMOTING POSITIVE TEACHER-CHILD INTERACTIONS THROUGH
IMPLEMENTATION OF A SOCIAL EMOTIONAL LEARNING CURRICULUM
WITH PERFORMANCE FEEDBACK

A Dissertation Presented

By

ELIZABETH S. BARKER

Submitted to the Graduate School of
the University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

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ELIZABETH S. BARKER

Approved as to style and content by:

Amanda M. Marcotte, Co-Chair

Sara A. Whitcomb, Co-Chair

Elizabeth A. Harvey, Member

Christine B. McCormick, Dean
College of Education

DEDICATION

For my mother, Karin Sinclair, whose immeasurable love and support gave me the courage to begin and finish this journey.

For my father, Jonathan Brown, who did not live to see my dissertation finished, but never doubted that this day would come.

For my brother, David Sinclair, whose faith and optimism propelled me forward when I was ready to quit.

For my Wellesley College advisor and mentor, Ray Starr, who recognized me as a scholar long before I did.

For my dear friend, Elisabeth Caron, who encouraged me with kind words and care packages when the going got rough.

And for my incredible husband, Sean Barker, who insisted that I leave time to see the world while undertaking this project. His kindness, insight, and patience are unmatched. Our adventures, and the promise of our future together, gave me the fortitude to finish this thesis.

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ABSTRACT

PROMOTING POSITIVE TEACHER-CHILD INTERACTIONS THROUGH
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WITH PERFORMANCE FEEDBACK

MAY 2015

ELIZABETH S. BARKER, B.A., WELLESLEY COLLEGE

M.Ed., UNIVERSITY OF MASSACHUSETTS AMHERST

Ph.D., UNIVERSITY OF MASSACHUSETTS AMHERST

Directed by: Drs. Amanda M. Marcotte & Sara A. Whitcomb

Although the nature of teacher-child relationships is a known factor in academic and social success, little research has focused on methods to improve these relationships at the classwide level. Social emotional learning has been proposed as a method to improve child social skills, a significant factor in promoting positive interpersonal relationships. In addition, teacher performance feedback has been shown to increase use of effective behavior management practices. However, no research to date has examined the effects of a comprehensive intervention involving delivery of a social emotional learning curriculum with performance feedback on the proportion of positive and negative teacher-child interactions observed in the classroom. Using a single subject ABCBC reversal design, this study examined the effects of *Strong Start: K-2* with performance feedback on a measure of teacher-child interactions. A combination of curriculum delivery and performance feedback was found to increase positive interactions and decrease negative interactions as measured by an adapted version of the Teacher Coder Impressions Inventory (TCI; Webster-Stratton et al., 2008).

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CHAPTER 1

STATEMENT OF THE PROBLEM

Introduction

A growing body of literature demonstrates the relationship between student and teacher has significant implications for children's school adjustment and success (Baker, 2006; Birch & Ladd, 1997; Birch & Ladd, 1998; Hamre & Pianta, 2001; Hamre & Pianta, 2005; Howes, Phillipsen, & Peisner-Feinberg, 2000, Mantzicopoulos, 2005, Pianta & Stuhlman, 2004). Relationships and interactions are commonly assessed in three domains: closeness, conflict, and dependency (Birch & Ladd, 1997; Mantzicopoulos, 2005; Pianta & Stuhlman, 2004). Closeness refers to the level of warmth and positive communication between teacher and child. Conflict describes lack of rapport, discordant interactions, and friction between child and teacher (Birch & Ladd, 1997). Dependency refers to over-reliance on the teacher. Classroom climate can be assessed through observing the nature of the interactions between teacher and students (Pianta, La Paro, Payne, Cox, & Bradley, 2002). Positive climates are characterized by close and caring relationships between teachers and children, while negative relationships are characterized by hostile or angry interactions between teachers and peers (Pianta, Hamre, & Allen, 2012).

The study of student-teacher relationships is rooted in attachment theory (Howes et al., 2000; Hughes, Cavell, & Jackson, 1999). Teachers are consistent figures in the classroom from whom children can seek emotional support in addition to academic support (Birch & Ladd, 1997). Like parents, teachers provide a secure base from which to explore the environment and participate in the classroom (Baker, 2006; Howes et al.,

2000). At the early childhood level, they serve as both caregivers and educators (Baker, 2006). In addition to instruction in academic subjects, teachers also regulate activity level, communication, and peer interaction within the room, and provide behavioral support and teach coping skills (Hamre & Pianta, 2001; Pianta & Stuhlman, 2004). This support and guidance from teachers assists children in regulating their social, behavioral, and self-regulatory competencies (Baker, 2006). With the teacher as a secure base, children are better able to take advantage of learning opportunities (Baker, 2006). Teacher and peer relationships become a “source of provisions” that supports children in successfully meeting the expectations of the school environment (Ladd, Birch, & Buhs, 1999, p.1375).

Emotional support in the classroom has been linked to higher levels of school satisfaction and engagement, better social competence, and reduced rates of problem behavior (Baker, 1999; Curby, Rimm-Kaufman, & Abry, 2013; Hughes et al., 1999; Mashburn et al., 2008). Emotionally supportive teacher-child relationships are associated with improved outcomes such as academic achievement and engagement, and reduced internalizing and externalizing problems (Hughes & Kwok, 2007; Hughes, Luo, Kwok, & Loyd, 2008; Hughes, 2011). Strong teacher-child relationships have been shown to buffer against the effects of risk factors. Warmth in teacher-child relationships is associated with decreases in externalizing behaviors, such as aggression, particularly among children with the highest baseline levels (Hughes et al., 1999; Silver, Measelle, Armstrong, & Essex, 2005). This effect persists through elementary school grades. Children with anti-social behaviors who form a close relationship with a teacher also show reduced rates of academic and learning problems in all elementary school grades

(Baker, 2006). In addition, students with behavioral and environmental risk factors who experienced emotionally supportive relationships with teachers have demonstrated rates of achievement equal to their low-risk peers, while those with less supportive relationships lagged significantly behind (Hamre & Pianta, 2005). Positive relationships and interactions with teachers provide children with a classroom climate conducive to learning (Baker, 1999). These protective effects may be long reaching. In a longitudinal study, kindergarten teachers' relationships with students were shown to be predictive of academic and behavioral outcomes through 8th grade (Hamre & Pianta, 2001).

While close student-teacher relationships can help reduce the effects of other risk factors, negative student-teacher relationships can exacerbate these effects (Ladd & Burgess, 2001). Among aggressive students, conflict in the student-teacher relationship predicted poor adjustment above and beyond the child's aggressive risk status (Ladd & Burgess, 2001). Conflict in student-teacher relationships is consistently associated with both concurrent and future maladjustment, including problems with academic competence, work habits, school liking, school avoidance, and frustration tolerance (Ladd et al., 1999; Ladd & Burgess, 2001; Mantzicopoulos, 2005; Silver et al., 2005). These types of relationships create a negative classroom climate for students; this negative social context may have particularly strong influence for children at risk (Baker, 1999). Among children with externalizing behavior, those with high-conflict teacher relationships in kindergarten showed disproportionate increases in problem behavior through third grade compared to their peers in lower-conflict relationships, even after controlling for the effects of negative parenting and baseline rates of problem behavior (Silver et al., 2005). The deleterious effects of negative student-teacher interactions may

be particularly strong for young children (Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002). Pre-school aged children tend to have more intense relationships with teachers than students in early elementary school (Pianta & Stuhlman, 2004). The effects of relationships and environment on very young children are magnified, and even small differences in classroom quality may play a significant role in long-term outcomes (Burchinal et al., 2002; Hamre & Pianta, 2001).

Factors Impacting Student-Teacher Relationships and Classroom Climate

Both teacher and child variables influence the quality of relationships. Children with externalizing problems – those most in need of the buffering effects of a strong relationship – are at high risk for conflict in relationships with teachers (Birch & Ladd, 1998; Hamre & Pianta, 2005; Mantzicopoulos, 2005). However, socially competent children are capable of forming and maintaining friendships, persisting with challenging tasks, communicating clearly and appropriately, and showing attention and cooperation in the classroom, actions which promote positive relationships with teachers (Joseph & Strain, 2003).

Teacher characteristics are also significant factors related to relationship quality. Stressful classroom conditions, teacher-perceived class difficulty, and high teacher stress are associated with more negative teacher-child relationships (Mantzicopoulos, 2005). Teachers who employ positive discipline strategies tend to have more positive relationships with the children in their care (Mantzicopoulos, 2005). Responsive teachers who are sensitive to the needs of their students are often successful at building close relationships even with challenging children (Hughes et al., 1999). In the context of an emotionally supportive classroom climate, children with problem behaviors do not show

increased rates of negative relationships with teachers compared to their peers with typical rates of problem behaviors (Buyse, Verschueren, Doumen, Van Damme, & Maes, 2008).

Both positive and negative relationships result from the interaction of child and teacher characteristics. Children with positive teacher relationships may have greater motivation to succeed in the classroom and please teachers (Hamre & Pianta, 2001). This motivation and cooperative behavior may prompt teachers to spend additional time and energy on the child's learning and success (Hamre & Pianta, 2001). However, if negative patterns of child behavior and teacher response are established, the child-teacher dyad may enter into a self-reinforcing cycle of behavioral and relational difficulties (Birch & Ladd, 1997; Sutherland & Oswald, 2005). Significant effort may be required to develop positive relationships with children who demonstrate challenging behaviors (Howes et al., 2000). Commonly, these behaviors will result in the teacher isolating the child or engaging in harsh interactions (Howes et al., 2000; Sutherland & Oswald, 2005). Harsh interactions or social neglect may prompt children to escalate challenging behavior, creating a self-perpetuating cycle of dysfunction and a negative classroom climate for the child.

Because the child's behavior and teacher-child interactions are highly reciprocal, intervention to either is likely to result in improvements to both (Hughes et al., 1999). Relationships are based on transactional processes, with the behavior of each party affecting the behavior of the other (Sutherland & Oswald, 2005). If a child's challenging behavior decreases, the teacher will regard the child more positively, improving the relationship. Similarly, if the teacher makes concerted efforts to improve the nature of

interactions with the child, the child's challenging behavior may decrease (Hughes et al., 1999). The detrimental effects of poor teacher-child relationships, coupled with the known risks of externalizing behavior in children, warrants intervention to change dysfunctional patterns of behavior and interaction. Interventions are most effective when they target both partners in the dyad (Murray & Murray, 2004; Sutherland & Oswald, 2005). Therefore, it is important to help children build skills in self-regulation and appropriate behavior, and assist teachers in engaging in emotionally supportive ways with their students (Buyse et al., 2008; Murray & Murray, 2004). Unfortunately, individualized interventions are resource intensive and inefficient when a significant proportion of young children show behavioral difficulties (Perry, Dunn, McFadden, & Campbell, 2008). Thus, there is a pressing need for universal programming that can help improve student behavior, teacher effectiveness, and classroom climate for the entire group.

Strengthening Student-Teacher Relationships with Social Emotional Learning Programs

Deficits in social-emotional skills are often cited as a reason for behavior problems in young children (Domitrovich, Cortes, & Greenberg, 2007). Over time, patterns of poor social emotional functioning limit the ability of students to form healthy relationships, comply with expectations, and learn effectively in the classroom. Kindergarten teachers consistently rate social factors, such as the ability to follow directions and be sensitive to the feelings of other children, as more critical for kindergarten success than early academic skills such as letter and number knowledge (Lewitt & Baker, 1995). However, more than 20% of kindergarten teachers report that at least half their class entered school with deficits in social skills, with even more teachers

indicating that a majority of their class struggle with specific areas of social skills including difficulty following directions (46.2% of teachers), difficulty working independently (34.4%), and difficulty working as part of a group (30.45%) (Rimm-Kaufman, Pianta, & Cox, 2000). The widespread lack of age-appropriate social skills may contribute to negative teacher-child relationships by contributing to negative behavior and poor school attachment.

Social emotional learning programs have been proposed as a way to prevent and address challenging behavior. They provide a framework for fostering resiliency through teaching the social and emotional skills to children and can be efficiently delivered in the classroom settings (Greenberg et al., 2003). SEL programs help children build skills in recognizing and controlling emotions, perspective-taking, goal setting, responsible decision making, and interpersonal relationships (Greenberg et al., 2003). SEL programs also promote caring and engaging classroom practices. In short, SEL programs strengthen the personal and social assets of children and improve overall classroom quality (Greenberg et al., 2003). Because SEL curricula are generally provided to all students at a universal level, they are a key component in preventing mental health and behavioral issues in schools (Greenberg et al., 2003). The implementation of SEL curricula has shown improvements in the social, behavioral, and cognitive skills of students in grades K-12 (Domitrovich, Cortes, & Greenberg, 2007). A recent meta-analysis indicated large effects in helping children develop emotion regulation and social skills (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011).

Administration of SEL programs may also help teachers engage in more positive interactions and develop healthy relationships with their students. Recently,

implementation of the *Strong Start: Pre-K* (Merrell, Whitcomb, & Parisi, 2007) curriculum has shown significant effects on both classroom climate and student-teacher relationships in a preschool classroom setting (Gunter, Caldarella, Korth, & Young, 2012). The implementation of SEL programs may help empower teachers to make positive changes in their own practices. Although the primary objectives of SEL programs focus on child behavior change, delivery of the curriculum itself represents a change in behavior for teachers. The experience of teaching social emotional skills may reinforce for teachers that behavior is a skill to be taught and clarifies their role in helping students form positive relationships. Effective SEL programs also emphasize building and maintaining a positive climate through the use of praise, attention, and encouragement, providing a framework for teachers to adjust their own language and practices (Gunter et al., 2012).

Use of SEL curricula provides a structured opportunity for teachers to engage children in discussions about feelings and relationships and build a common classroom vocabulary. This task is accomplished through two complementary methods. First, teachers directly instruct students in skills that promote positive behavior and school adjustment, such as problem solving and anger management, using the curriculum materials (Joseph & Strain, 2003). Second, SEL skills are intended to be applied throughout the school day (Zins & Elias, 2006). Teachers are encouraged to model pro-social language and skills and prompt children to use these previously taught skills in real-life situations. Essentially, a teacher-delivered curriculum targets both sides of the dyad, using change in teacher behavior to promote changes in child behavior. Improvements in child behavior are reinforcing to teachers, who continue to engage

positively with students. Because of the transactional nature of interactions, these behavioral changes should operate synergistically and grow over time with each party reinforcing positive behavior in the other (Sutherland & Oswald, 2005).

Performance Feedback and Teacher-Child Relationships

Given the significance of changes in teacher behavior to help promote and reinforce changes in child behavior, it is critical to ensure that teachers receive the support and information necessary to make positive changes. Performance feedback is a method to help teachers change their use of specific behaviors and strategies by presenting them with data gathered through classroom observations. Performance feedback has been shown to effectively increase quality behavior support strategies, such as behavior specific praise and behavioral reinforcement (Reinke, Lewis-Palmer, & Merrell, 2008). In fact, some evidence suggests that consultation does not change teacher behavior without performance feedback (Jones, Wickstrom, & Friman, 1997). Therefore, performance feedback in fostering warm and encouraging interactions is a promising intervention to improve the quality of teacher-child relationships. Importantly, performance feedback retains efficacy even without the provision of significant teacher training (Noell, Witt, Gilbertson, Ranier, & Freeland, 1997).

Performance feedback is generally used to monitor the implementation fidelity of a specific intervention (Solomon, Klein, & Politylo, 2012). However, SEL is not a stand-alone intervention; rather, it must be implemented in the context of an emotionally supportive classroom (Zins, Bloodworth, Weissberg, & Walberg, 2004). Supportive learning environments foster stronger teacher-child relationships and higher efficacy of social emotional learning curricula (CASEL, 2003; Zins et al., 2004). Ongoing

monitoring of environmental factors is a key piece of successful SEL implementation, and can be done through teacher coaching and feedback (Zins et al., 2004). Therefore, performance feedback should target not only implementation of the curriculum itself, but also teacher behaviors that impact classroom climate, such as positive and negative interactions with students. Recalling the transactional nature of relationships and behavior, this finding is unsurprising. Teacher support and feedback is one method to ensure that students receive the benefit of both direct skill instruction and emotionally supportive teacher behavior, promoting their own behavioral change. Although performance feedback has demonstrated positive effects on teacher behavior, these effects may not be maintained after withdrawal of the feedback. Reinke, Lewis-Palmer, & Martin (2007) found that teacher use of intervention strategies decreased significantly after performance feedback was discontinued. Similarly, Gilbertson, Witt, Singletary, & VanDerHeyden (2007) found that performance feedback increased implementation of a mathematics intervention, but effects were reduced following withdrawal of the feedback component. Other studies with limited follow-up data have demonstrated mixed results for maintenance of results (Coddington, Feinberg, Dunn, & Pace, 2005; Hemmeter, Snyder, Kinder, & Artman, 2011; Reinke, Lewis-Palmer, & Merrell, 2008)

Although traditionally performance feedback has been provided in a face-to-face manner, electronic methods are gaining popularity due to their ease of use and convenience. Feedback via email has demonstrated effectiveness in changing teacher behavior and associated child outcomes (Hemmeter et al., 2011).

The Current Study

Existing research indicates that teacher influence is a salient factor in children's

social emotional development. However, little work has examined the effects that the delivery of SEL curricula by teachers has on their relationships with children in their classrooms, with or without consultative support. Given the importance of teacher-child interactions as a factor in academic and social outcomes, there is a need for classwide interventions that improve relationships (Gunter, et al., 2012; Pianta, Mashburn, Downer, Hamre, & Justice, 2008). The current study was based on a transactional model of interaction in which both child and teacher behavior influence the behavior of the other party (Sutherland & Oswald, 2005). The primary purpose of this study was to examine whether the implementation of an SEL curriculum by classroom teachers would lead to improvements in teacher-student interactions, and whether the addition of performance feedback to target teacher behavior would lead to more compelling improvements. Previous work has shown that *Strong Start* results in improved teacher-child relationships in pre-school age children, but this finding has not been replicated in school-aged children (Gunter et al., 2012).

This study was designed to evaluate the effects of a comprehensive classroom intervention designed to support SEL development and positive classroom climates. The intervention included two components, a brief social emotional learning curriculum and the use of consultative performance feedback, to improve the emotional support practices of teachers and increase warmth and reduce conflict in student-teacher relationships. This study examined several research questions: (1) Did the implementation of the *Strong Start: K-2* curriculum in kindergarten classrooms increase positive teacher-child interactions? (2) Did the implementation of the *Strong Start: K-2* curriculum decrease negative teacher-child interactions? (3) Did the addition of performance feedback in

kindergarten classrooms increase positive teacher-child interactions? (4) Did the addition of performance feedback decrease negative teacher-child interactions? and (5) Were gains resulting from provision of performance feedback maintained after performance feedback was withdrawn?

I hypothesized that implementation of the *Strong Start* program by classroom teachers would result in an increase in the positive interactions and a decrease in negative interactions that are observed between classroom teachers and their students. Because skill development occurs gradually, I did not anticipate immediate and dramatic changes in interactions, but rather trend changes over time. Second, I predicted that the addition of performance feedback would result in positive level and trend changes in positive interactions and negative level and trend changes in negative interactions. Because performance feedback reinforces specific areas of strength and targets specific areas of weakness, it has the potential to produce significant changes in teacher behavior, and consequently in child behavior, immediately upon implementation. Finally, I predicted that withdrawal of performance feedback would result in decreased positive interactions and increased negative interactions, because of the removal of positive or negative reinforcement based on performance. In addition, teachers may be less aware of their own behavior in the absence of consistent feedback. Relatedly, we predicted that the effects observed as a function of the withdrawal of performance feedback would be reversed upon its reintroduction.

CHAPTER 2

LITERATURE REVIEW

Student Social and Emotional Health

Student mental health has become an increasingly prominent issue in light of recent incidents of violence, bullying, and suicide in youth across the country (Borum, Cornell, Modzeleski, & Jimerson, 2010; Hinduja & Patchin, 2010; Nansel et al., 2001). However, high profile cases are exceptionally rare when compared to the broad prevalence of mental health conditions and behavioral problems. Some 12-22% of students are estimated to have a diagnosable mental health condition, and fewer than half of these children ever receive services to address their needs (Greenberg, Bumbarger, & Dimitrovich, 2001; Merikangas et al., 2010). A recent study by the National Institute of Health found that approximately 14% of children aged 8-15 met diagnostic criteria for at least one of six DSM-IV-categorized mental health disorders within the past year (Merikangas et al, 2010). When more common emotional difficulties in childhood are included, such as phobias and separation anxieties, prevalence of a mental health disorder at some point between the ages of 9 and 16 reaches as high as 37%, and rises to 61% by age 21 (Copeland, Shanahan, Costello, & Angold, 2011; Costello, Mustillo, Erkanli, Keeler, & Angold, 2003).

However, not all behavioral issues can be classified as diagnosable mental health conditions, and the incidence of behavior problems among children and youth is a problem in its own right. Nearly 30% of children in 6th-10th grade report “moderate” or “frequent” involvement in bullying, either as a bully (13.0%), a target (10.6%), or both (6.3%). Behavioral concerns at school also affect young children, with 39% of preschool

teachers reporting that they have expelled at least one child in the past year (Gilliam & Shahar, 2006). While estimates of significant behavioral issues vary widely, with teacher-reported prevalence ranging from 14-52%, depending on the assessment method and demographic group (Qi & Kaiser, 2003; Upshur, Wenz-Gross, & Reed, 2009). Children living in poverty are at particular risk of behavioral concerns (Qi & Kaiser, 2003).

Difficulties with behavior can impede successful transition to formal schooling (Rimm-Kaufman et al., 2000). Upon kindergarten entry, a significant proportion of young children lack the necessary behavioral skills to succeed and benefit from instruction (West, Denton, & Reaney, 2001). Teachers reported that at least half their class showed difficulty in following directions (41.6% of teachers), working independently (34.39%), working as part of a group (30.45%), and navigating social situations (20.39%) (Rimm-Kaufman et al., 2000). These early childhood behavioral problems are particularly concerning in light of the growing evidence that developmental trajectories are established early and, without intervention, persist through adulthood (Campbell, Shaw, & Gilliom, 2000; Rhoades, Warren, Dimitrovich, & Greenberg, 2011; Vitaro, Larocque, Janosz, & Tremblay, 2001).

Social emotional skills develop in synergy with cognitive and academic skills, with each enabling further growth in the other domains (Rhoades et al., 2011). Therefore, social adjustment has significant implications for academic achievement and future mental health (DeRosier & Lloyd, 2011). Children who do not achieve social-emotional milestones are at high risk of later psychopathology and academic difficulty (Denham, 2006). Jimerson, Egleland, Sroufe, & Carlson (2000) describe high school drop out as “a developmental process” that begins in early life, and social emotional deficits are

“markers of presence on the pathway” (p.544).

These behavioral and mental health concerns have significant human and economic costs. Several studies have found significant relationships between behavioral problems and academic achievement, school engagement, peer and teacher relationships, mental health problems, high school drop out and delinquency (DeRosier & Lloyd, 2011; Malecki & Elliott, 2002; Masten et al., 2005; McLelland, Morrison, & Holmes, 2001; Molainan, Shaw, & Maxwell, 2010; Risi, Gerhardstein, & Kistner, 2003; Tremblay, Pihl, Vitaro, & Dobkin, 1994; Vitaro et al., 2001). Behavioral symptoms limit children’s ability to engage productively in learning activities and to form healthy relationships with peers (Miller-Johnson, Coie, Maumary-Gremaud, Lochman, & Terry, 1999; Moilanen et al., 2010). Behavior problems in school commonly result in discipline that excludes the child from the classroom, leading to lost learning time (Phillips, Linney, & Pack, 2008). In addition, Phillips (2008) estimates that expenses and lost funding resulting from student behavior issues (truancy, suspension, expulsion, vandalism, and drop-out) could cost over 2 million dollars per year for a typical high school of 1,000 students (Phillips, 2011; Phillips et al., 2008).

Economic costs of mental health conditions are not limited to the school years; the presence of antisocial behavior at age 10 is a powerful predictor of later costs to public funding in adulthood, such as prison or welfare (Scott, Knapp, Henderson, & Maughan, 2001). In a British study, 12% of the population was categorized as having either conduct problems or a persistent conduct disorder at age 10; this group accounted for approximately half of public expenditures, an average of 10 times the cost for the average citizen by age 28 (Scott et al., 2001). The economic burden of antisocial

behavior is similarly increased for young children with antisocial behavior, with a significant portion of costs such as therapy or lost time at work falling on the child's family (Romeo, Knapp, & Scott, 2006).

While the development of social emotional skills should ideally begin in infancy, not all young children receive the early experiences and instruction that help develop the skills needed for success in school (Barnett & Yarosz, 2004). Approximately 1/3 of children have no preschool experience before entering kindergarten and may be lacking skills expected in kindergarten such as following directions and working with a group. (Barnett & Yarosz, 2004; Rimm-Kauffman et al., 2000). Children with educational risk factors, such as living in poverty, show disproportionately greater gains in large academic and social-emotional skills from a high quality preschool program when compared with children from higher income families (Peisner-Feinberg & Burchinal, 1997). However, children from low-income families are less likely to receive a preschool experience. Only 20% of three year olds from families in the \$20,000-\$30,000 income bracket attend preschool, compared with 71% of children from families making over \$100,000 (Barnett & Yarosz, 2004).

Kindergarten is a time of significant transition and growth for all children, but can be particularly difficult for children who are new to a school environment (Rimm-Kaufman et al., 2000). Approximately 31% of teachers report that lack of preschool experience is a significant barrier to school adjustment for at least half their class (Rimm-Kaufman et al., 2000). In order to access educational opportunities, kindergarten students are expected to follow directions, cooperate, pay attention, and manage distress (Raver, 2003). Children who are able to self-regulate, express emotion appropriately, and solve

social problems are regarded as more “teachable” and are at a significant academic and social advantage compared to children for whom these skills are not mastered (Denham, 2006).

Learning-related social skills, such as listening to directions and following teacher requests, in kindergarten students contribute uniquely to math and reading achievement, and this gap widens over time (McLelland, Acock, & Morisson, 2006). The academic and social demands of kindergarten are also far greater than preschool or home, and must be achieved with less support due to larger class sizes and increased expectations of autonomy (Graziano, Reavis, Keane, & Calkins, 2007). Social skills such as regulating emotions and resisting distractions help children successfully meet the academic requirements of kindergarten (Graziano et al., 2007). Due to both the critical need for social emotional skills in kindergarten and the universal access for children from all backgrounds, the first year of public schooling provides a unique opportunity to build a foundation of behavioral skills that support social and academic development before problematic behaviors have become ingrained and are more difficult to alter (Durlak & Wells, 1997; Webster-Stratton & Taylor, 2001)

Social Emotional Learning

While low social competence threatens school success and adult mental health, pro-social behaviors facilitate social and academic success by promoting peer acceptance, positive student-teacher relationships, and participation in learning opportunities (Greenberg et al., 2003; Ladd et al., 1999). Socially competent children are capable of forming and maintaining friendships, persisting with challenging tasks, communicate clearly and appropriately, and show attention and cooperation in the classroom (Joseph &

Strain, 2003). Children who enter school with these skills are likely to experience continued academic and social success (McLelland et al., 2006). Because of the close association between school achievement and behavioral competencies, social emotional skills have been targeted for intervention as a key variable to increase school success and reduce negative outcomes such as drop-out and delinquency (Bierman et al., 2008; Denham, 2006; Raver, 2003; Raver & Knitzer, 2002; Shonkoff & Phillips, 2000). Key skills in social emotional development include recognizing and controlling emotions, perspective-taking, goal setting, responsible decision making, and managing interpersonal relationships (Denham & Brown, 2010; Greenberg, 2003). These competencies are interrelated, with each ability enabling further development of the others (Denham & Brown, 2010). Because the components of social emotional functioning do not operate in isolation, and because these skills are so critical to healthy development, the educational community has identified a pressing need to support social emotional learning in a coordinated, comprehensive way (Denham & Brown, 2010).

Systems to promote social and emotional health use a three-tiered model derived from the discipline of public health (Reinke, Splet, Robeson, & Offutt, 2009; Tilly, 2008). This prevention-oriented model offers three levels of support based on the observed needs of the child. At the first tier, universal programming focuses on building resilience and reducing risk factors for all students (Reinke et al., 2009; Tilly, 2008). The second tier supports students with identified risk for negative outcomes by addressing specific areas of need or deficit while building on existing strengths. Children receiving tier two support continue to benefit from tier one programming. Tier three targets a small group of students with the highest level of need (Zins & Elias, 2006). These students

require intensive, individualized services to succeed in the school environment. Because supports are additive in this model, tier three students receive all the supports available to students with lower levels of need (Reinke et al., 2009; Tilly, 2008).

Social emotional learning curricula have been recommended for use at the universal level to help build key competencies for all students (Durlak & Wells, 1997; Zins & Elias, 2006). As a universal intervention, several characteristics have been identified in effective social emotional learning curricula (Zins & Elias, 2006). They must be based in research, sequenced and interactive, and developmentally appropriate. Effective programs present information explicitly and allow opportunities to practice new skills and receive feedback about performance (Payton et al., 2000). In addition, curricula must have defined outcomes that are applicable to both academic skills and everyday life (Payton et al., 2000; Zins et al., 2004). The acronym SAFE has been used to outline the necessary features of successful SEL programs: sequential, active, focused, and explicit (Durlak et al., 2011). Carefully planned lessons that offer direct instruction and active student participation in learning specific skills are likely to lead to positive results (Durlak et al., 2011).

Several such curricula have been investigated and found to produce positive outcomes for students of all grade levels, races, geographies, and needs (Payton et al., 2008). Studies of the *Incredible Years* program for young children show statistically significant increases in social competence and emotional regulation, and decreases in conduct problems among children from preschool through first grade (Webster-Stratton, Reid, & Stoolmiller, 2008). A study of another SEL curriculum, *Promoting Alternate Thinking Strategies (PATHS)*, showed reduced aggressive behavior, increased prosocial

behavior, and improved academic engagement among students in grades one through three. The effects were strongest in schools with student populations who have the highest risk factors and for the students with the highest baseline levels of aggression (Bierman et al., 2010). The same curriculum led to increased emotion understanding and social problem-solving skills among preschool- aged children (Bierman et al., 2008; Domitrovich, Cortes, & Greenberg, 2007). Similarly, use of the *Second Step* curriculum has shown significant increases in observed prosocial behavior and decreases in observed aggressive behavior in a sample of elementary aged children (Grossman et al., 1997). In multiple meta-analyses, social emotional learning programs consistently show significant decreases in internalizing and externalizing problems and improvements in social emotional skills (Durlak et al., 1997; Durlak et al., 2011; Joseph & Strain, 2003; Payton et al., 2008). In addition, a meta-analysis of 317 studies indicates that students in classrooms using social emotional learning programs demonstrate academic performance 11 to 17 percentile points higher than students in control classrooms on standardized achievement measures (Payton et al., 2008).

Strong Start Social Emotional Learning Curriculum

While many of the excellent social emotional learning curricula on the market have shown positive results with student outcomes, the associated resource expenditures can pose a significant barrier to use in the classroom setting (Merrell, Juskelis, Tran, & Buchanan, 2008). Curricula are frequently very expensive, require extensive training to deliver, or require so much instructional time that they interfere with other required lessons (Merrell et al., 2008). However, lower cost options are available. The *Strong Kids* series provides a set of lessons divided into various developmental levels. *Strong Start*

Pre-K addresses the needs of very young children, *Strong Start* is designed for grades K-2, *Strong Kids* includes curricula for children in grades 3-5 and 6-8, and *Strong Teens* is intended for students at the high school level (Gunter et al., 2012; Merrell et al., 2008). These curricula include 10-12 lessons that are each designed to be implemented by classroom teachers (Merrell et al., 2008). The curriculum is extremely low cost and requires only materials commonly found in classrooms, rather than commercially available set of props (Merrell, Parisi, & Whitcomb, 2007). Lessons are brief, intended for weekly delivery, and can be presented to an entire class in less than 45 minutes (Merrell et al., 2007). In addition, *Strong Start* heavily incorporates children's literature to provide a context for discussion of social topics (Merrell et al., 2007). Like most effective curricula, the Strong Kids series follows the SAFE acronym with sequential, active, focused, and explicit lessons (Durlak et al., 2011).

Strong Start has been shown to reduce internalizing behavior as well as increase pro-social peer interactions in kindergarten and second grade students, as indicated by teacher and parent reports (Caldarella, Christensen, Kramer & Kronmiller, 2009; Kramer, Caldarella, Christensen, & Shatzer, 2010; Whitcomb & Merrell, 2012). First grade students also showed increased emotion knowledge after receiving *Strong Start* (Whitcomb & Merrell, 2012). Among preschoolers, use of the *Strong Start* Pre-K resulted in decreased internalizing behavioral problems as well as reduced levels of conflict as reported by preschool teachers (Gunter et al., 2012). Other work has shown increases in social emotional skills and reductions negative emotionality in students from grades five to twelve after use of the *Strong Kids* and *Strong Teens* curricula. Importantly, the *Strong Start* and *Strong Start Pre-K* curricula were shown to have high

implementation fidelity and social validity as rated by the teachers who delivered it (Gunter et al., 2012; Whitcomb & Merrell, 2012). *Strong Start* meets the criteria associated with sustainability for school mental health programs: it is effective, feasible to implement with minimal resources, and flexible (Han & Weiss, 2005).

Student-Teacher Relationships

Despite the clear effectiveness of social emotional learning programs to improve student outcomes, SEL programs are not intended to be used in isolation (Zins & Elias, 2006). Instead, school climates must integrate the use of social emotional skills across settings, model appropriate social functioning, and use discipline that is reflective of the goals of SEL (Zins & Elias, 2006). In addition, implementation of these programs varies widely, even when the curriculum itself is highly standardized (Hamre & Pianta, 2005; Jennings & Greenberg, 2009). In one classroom, teachers may present the material enthusiastically in a well-managed classroom with frequent praise and positive attention. Another teacher may teach the program half-heartedly with frequent interruptions to chastise misbehaving students. Essentially, the program is only as good as the classroom in which it is implemented and the teacher who presents it; in teaching social behavior, supportive student-teacher relationships facilitate children's learning of an SEL curriculum's intended skills (Hamre & Pianta, 2006). The importance of social relationships for learning is supported by a variety of developmental theories.

Developmental Theories

Social Learning Theory posits that the most powerful learning comes from observation of the reciprocity between behavior and its consequences (Bandura, 1971). Children can learn behavioral and emotional responses by watching the behavior of

others: when those responses occur and what consequences result. Therefore, modeling is a major source of education, allowing imitation of the skills that children observe. While teaching may occur through other means, access to modeling increases the speed and fluency with which children learn new skills. Therefore, the behaviors that children observe most frequently are those that are most likely to be learned. In addition, parents and teachers provide critical reinforcement to encourage repetition of desirable social behaviors and can verbally describe and clarify the behavior that has earned praise (Bandura, 1971).

Attachment Theory takes a somewhat different view, framing secure relationships as the security net that empowers children to explore and learn by through experience. In attachment theory, relationships are viewed as the framework through which children construct views of themselves and the world around them (Bowlby, 1982). Through interactions with adults, children develop beliefs about whether they are good or bad, compliant or defiant, bright or dull, and whether the world is safe or dangerous, interesting or frightening, stimulating or overwhelming. Without adults to provide emotional security, children may struggle to engage fully in the educational process (Pianta, 1999).

Vygotsky's Social Development Theory also emphasizes the role of adult support in the learning process. Vygotsky (1978) suggests that all skills must be observed first before being internalized, and that this process usually takes place through scaffolding by a “more knowledgeable other” who helps the child bridge the gap between what they can currently perform alone, and what they are capable of performing with assistance. By tackling tasks that fall in this “zone of proximal development” with adult

support, children learn and gain capacity for greater independence in the future.

Therefore, learning is based entirely on reciprocal communication and relies on effective and productive communication between children and their teachers.

Finally, Bronfenbrenner's (1978) Ecological Systems Theory identifies environmental systems in which the child develops. This theory purports that a child's development cannot be considered in isolation, but rather in the context of the interactions between the child and the social contexts in which they live. For children, the school context is particularly salient and demands a unique set of skills and behaviors from children. Relationships with teachers are an important factor to facilitate children's success in this context. Teacher and peer relationships become a “source of provisions” that support children in successfully meeting the expectations of the school environment (Ladd et al., 1999, p.1375). Children who lack emotionally supportive relationships are missing a key environmental factor that enables effective learning (Pianta, Hamre, & Stuhlman, 2003).

Research on Supportive Child-Teacher Relationships

Several key dimensions of relationships have been identified through analysis of interactions between children and teachers (La Paro, Pianta, & Stuhlman, 2004; Ladd et al., 1999; Pianta et al., 2003). When questioned about the most salient characteristics of their relationships with students, teachers tend to describe degrees of closeness and conflict. Similarly, when questioned about relationships with teachers, students tend to remark on emotional closeness, communication, and negativity (Pianta et al., 2003). Self-reports of relationship dimensions are consistent with the types of interactions noted during direct observation (Ladd et al., 1999). Based on these data, key dimensions of positive and

negative teacher-child relationships have been identified.

Positive relationships are indicated by closeness between children and teachers. Closeness refers to the extent to which the teacher engages in warm interactions with children, offers comfort, or engages in conversation about the child's non-academic life (Hamre & Pianta, 2001). Within these high quality relationships, adults are able to accurately interpret a child's emotional cues, respond to those cues, show acceptance and warmth, provide help when needed, model appropriate social behavior, and guide children's behavior in turn (Pianta et al., 2003). Teachers who provide a positive classroom climate show high levels of warmth, availability, sensitivity, responsiveness, and child-centeredness, showing concern for the child's perspective, addressing observed needs, and providing individualized attention (Hamre & Pianta, 2005; Hamre & Pianta, 2006; Pianta et al., 2002). Positive relationships are based on interactions that show care, interest, and investment in the child, including showing interest in children's lives out of school, recognizing and building on individual strengths, provide high-quality feedback on behavior and academics, and using positive, non-punitive discipline strategies (Jennings & Greenberg, 2009; Pianta & Hamre, 2006; Pianta, Hamre, & Allen, 2012). Teachers who establish positive climates in their classroom show low levels of conflict in their classroom, encourage appropriate expression of feelings, coach students through respectful conflict resolution, and offer a calm environment with smooth transitions between activities. Embedded social emotional teaching is common in teachers with positive classroom climates; that is, they model, scaffold, and reinforce appropriate social interactions throughout the school day (Webster-Stratton et al., 2008). They manage difficult behavior with kindness, respect, and a focus on instruction rather than

punishment (Jennings & Greenberg, 2009). On observational measures, they are likely to show high frequency on items such as “teacher encourages feeling language” and “teacher taught prosocial behavior”(Webster-Stratton et al., 2008).

Meanwhile, negative relationships are characterized by hostility, conflict, and over-control of children's activities (Hughes, Cavell, & Jackson, 1999). Teachers engaged in negative interactions may be excessively rigid, harsh, and use punitive or coercive discipline strategies (Jennings & Greenberg, 2009). Students in these classrooms may experience yelling or humiliation in response to difficult behavior, and hear far more reprimands than praise (Pianta et al., 2012; Sutherland, 2000). Interactions may be strictly task-oriented with no personal or emotional component that engages or motivates the child (Pianta et al., 2012). This anger and hostility is a prominent feature of negative relationships between teachers and children. Teachers engaged in high-conflict relationships with children tend endorse items such as “This child and I always seem to be struggling with each other” and “The child easily becomes angry at me” when asked to describe their interactions with individual students (Hamre, Pianta, Downer, & Mashburn, 2008). When observed on a class-wide level, teachers may show anger when disciplining, criticize students, or use sarcasm when observed with a structured observation tool, such as the Teacher Coder Impression Inventory (Webster-Stratton et al., 2008). Dependency is a secondary component of negative interactions, often frustrating teachers who perceive overly dependent children as “clingy” (Birch & Ladd, 1997). Importantly, dependency is an independent construct from closeness; it refers to the child's insecurity and constant need for teacher support rather than an affectionate and warm relationship that is rewarding to both teacher and child (Birch & Ladd, 1997).

Negative and positive relationships are each associated with unique developmental outcomes both concurrently and predictively. Merritt, Wanless, Rimm-Kaufman, Cameron, & Peugh (2012) found that emotionally supportive relationships were associated with lower rates of child aggression and higher rates of behavioral self-control in first grade students. This effect was observed across socio-demographic groups. Baker (2006) found that across the elementary grades, teacher-child relationships are related to classroom adjustment and child social skills. Conflict between students and teachers is associated with kindergarten school avoidance, decreased school liking, reduced self-directed behavior, and lower cooperation (Birch & Ladd, 1997). The quality of relationships has particularly large effects for children with developmental vulnerabilities, such as behavior or learning problems (Baker, 2006; Baker, Grant, & Morlock, 2008). Children at risk for negative outcomes may benefit disproportionately from close relationships, as evidenced by decreases in externalizing behavior among highly-aggressive children who develop positive relationships with teachers in second and third grade (Hughes, et al. 1999). A large-scale study of over 1,300 children across elementary grades also found that high-quality relationships predicted lower levels of externalizing behavior (O'Connor, Dearing, & Collins, 2011). Importantly, this effect was not only concurrent; rather, close relationships actually impacted the developmental trajectory of young students. First graders with high levels of internalizing behavior who developed a close relationship with their teacher were less likely to display these same problems in later grades (O'Connor et al., 2011). Conversely, conflict in the kindergarten student-teacher relationship predicted disproportionate increases in behavior problems between kindergarten and first grade (Ladd & Burgess. 2001), continuing in third grade

(Silver et al., 2005). Long-term longitudinal analyses of relationships and outcomes between kindergarten and middle school demonstrated that the kindergarten child-teacher relationship predicted behavioral problems through 8th grade and social skills through 6th grade, even when controlling for kindergarten skill levels and behavior problems (Berry & O'Connor, 2010; Hamre & Pianta, 2001). These results are particularly strong for children with the greatest problems in kindergarten adjustment; a close, low-conflict relationship with the kindergarten teacher appears to protect these high-risk children from negative outcomes associated with their functional risk (Hamre & Pianta, 2001).

The impact of teacher relationships on child outcomes is not limited to behavior, but also impacts the development of academic skills. Emotional support is highly linked to instructional support; teachers who provide their students with high levels of emotional support early in the year tend to demonstrate better instructional support as the year progresses (Curby, Rimm-Kaufman, & Abry, 2013). In addition to improving teaching itself, emotional support also increases student motivation (Hamre & Pianta, 2001). Positive teacher-child relationships are linked to better school attachment and language skills among low-income African American students who may be otherwise disconnected from school (Baker, 1999; Burchinal et al., 2002). More positive feelings toward school and increased school engagement results in increased participation and achievement (Ladd, 2000). Through structural equation modeling, Hughes & Kwok (2007) have also demonstrated a relationship between a child's academic achievement and the quality of the relationship with the previous year's teacher. Using similar methods, Hughes et al. (2008) found that the student-teacher relationship impacts the following year's engagement and effort, which impacts the third year's reading and math achievement.

This relationship between positive relationships and academic achievement has been observed in classrooms across grade levels. At the preschool level, relationship closeness and relationship conflict were predictive of concept knowledge and language competence, as well as teacher-reported levels of school competence (Garner & Waajid, 2008). These associations persist after entry to kindergarten. High-quality relationships between five year olds and their teachers are associated with greater academic success in the classroom, and higher test scores in both reading and math (Graziano et al., 2007). These students were also more likely to engage in classroom behaviors that supported continued achievement, such as thorough and timely completion of tasks. These effects persisted even when accounting for the IQ of the child (Graziano et al., 2007). Similarly, Ladd et al. (1999) found that observer-rated conflict between kindergarten students and their teachers is associated with lower classroom participation and academic achievement during the first half of kindergarten.

In fact, supportive relationships have the power to ameliorate risk; five and six year old students with low academic readiness and behavioral problems upon school entry were found to display later achievement equal to that of their low-risk peers when their classroom teacher reported a positive relationship (Hamre & Pianta, 2005). However, similarly at-risk students placed in less supportive classrooms followed a different trajectory of lowered academic achievement and higher levels of conflict (Hamre & Pianta, 2005). The academic impact of teacher-child relationships also extends past the duration of the child's time in a particular classroom; Pianta & Stuhlman (2004) found that preschool teacher-child relationships are associated with academic skills at first grade.

Factors Influencing Child-Teacher Relationships

The factors influencing the development of relationships can be broken down into three categories: child characteristics, teacher characteristics, and contextual factors (Hamre & Pianta, 2006). Because relationships develop from reciprocal interactions, the contributions of each party influences the other. While some factors are fixed, others are malleable and provide broad opportunity for intervention. A variety of child-level factors have been identified in the literature. Students from minority racial and ethnic backgrounds are less likely to experience high quality relationships with teachers, particularly when the teacher's race is different from their own (Ladd & Burgess, 2001; Saft & Pianta, 2001). Children of low socio-economic status, as well as those who attend a high-poverty school, are less likely to experience positive relationships with teachers (Pianta et al., 2002). Boys are less likely to enjoy close, low-conflict student-teacher relationships than their female peers (Baker, 2006; Hamre & Pianta, 2001; Ladd et al., 2001).

The behavioral and academic skills of the child also factor significantly into their likelihood of forming positive relationships with teachers. Children with behavior problems are much more likely to experience negative interactions with teachers (Hamre & Pianta, 2001; Henricsson & Rydell, 2004; Ladd & Burgess, 2001; Ladd et al., 1999; Mantzicopoulos, 2005; O'Connor, 2010). This effect is observed for both internalizing and externalizing behaviors; conversely, the presence of appropriate social skills increases the likelihood of a positive teacher relationship (Baker, 2006). Additionally, academic difficulties measured through report card grades and standardized achievement measures are associated with reduced closeness and increased conflict in the student-

teacher relationship (Baker, 2006). As noted above, these children with developmental vulnerabilities have the greatest need of supportive teacher relationships, yet are less likely to develop them. However, after socially maladjusted children experience the emotional support from a high-quality relationship, they are no longer at increased risk of high-conflict teacher relationships in the future (Buyse et al., 2008).

Several teacher-level factors have also been found to influence the nature of relationships with children. Teachers who experienced harsh discipline in childhood are less likely to form close relationships with students (Kesner, 2000). Teachers who exhibit generally negative affect tend to have more conflicted relationships, as do those who are particularly concerned about child compliance (Stuhlman & Pianta, 2001). Rigidity, teacher stress, and perceived difficulty of the teaching assignment are all associated with reduced quality of relationships between teachers and children (Mantzicopoulos, 2005). Teachers with high self-efficacy, desire to improve as teachers, report enjoyment of teaching, and have high expectations for student learning are more likely to foster caring classroom communities (Battistich, Solomon, Watson, & Schaps, 1997; Pianta, 1999). Additional adult support in the classroom setting, developmentally appropriate instruction strategies, activities to support children's transition into school, and teacher flexibility are all associated with lower relational conflict (Mantzicopoulos, 2005). Perhaps most importantly, the social-emotional competence of teachers enables them to be nurturing and supportive of their students. Socially competent teachers are aware of their own feelings and those of others, are able to self-regulate their emotions, sensitively and calmly manage difficult behavior (Jennings & Greenberg, 2009).

Like children, adults are capable of improving their social emotional skills, yet

most teachers have never received any specific training in coping with social emotional issues in the classroom (Jennings & Greenberg, 2009). With increasing demands on teachers, those without the skills and support to work effectively are at risk of burnout, which may manifest in increasingly punitive discipline, out of control student behavior, and a self-perpetuating cycle of teacher and child dysregulation (Jennings & Greenberg, 2009; Osher et al., 2007). Contextual factors may also influence how well a teacher is able to provide emotionally supportive interactions with students. Teachers whose classroom assignments include a high concentration of students with behavior problems are more likely to show frequent conflict in their interactions with children (Buyse et al., 2008). Teachers with a high child to teacher ratio in their classroom are also less able to provide high quality emotional support, but teacher salaries are associated with better quality relationships (O'Connor, 2010; Pianta et al., 2002).

Improving Teacher-Child Relationships

Teacher-child relationships are highly transactional, with the behavior of teachers influencing the behavior of students, and the same process occurring in reverse (Sutherland & Oswald, 2005). These bidirectional influences shape the behavioral trajectory of the teacher and child (Sutherland & Oswald, 2005). Students who act out may be less rewarding to teach, such that they receive fewer opportunities to connect with adults at school and reduced individualized instruction (Wehby, Symons, & Canale, 1998). Teachers tend to avoid aggressive and disruptive students, and focus their instructional efforts and positive attention on more prosocial students (Wehby et al., 1998). They are more likely to reprimand disruptive students rather than redirect behavior, and in turn these students are less likely to comply with requests (Nelson &

Roberts, 2000). Conversely, pro-social children are rewarding to teach and receive a great deal of teacher attention in the classroom (Wehby et al., 1998). This attention reinforces appropriate school behavior and further motivates children to engage in the learning process and please their teachers (Hamre & Pianta, 2001). While most teachers are able to form positive relationships with cooperative and compliant children, teachers vary in their ability and willingness to work toward building positive relationships with more difficult students (Howes et al., 2000). However, as discussed previously, a large proportion of kindergarten students arrive to school with some behavioral concerns, placing them at risk of negative teacher-child relationships (Rimm-Kaufman et al., 2000). Therefore, there is an obvious need to support teachers and students in developing close, low-conflict relationships with all students, including those who may pose a greater challenge.

Because many of the child and teacher level traits that influence relationships are highly malleable, a number of studies have indicated that intervention on either side of the dyad can produce positive change. Since interactions are highly reciprocal, the most effective interventions will target both sides of the relationship, through the behavior of both the teacher and child (Pianta et al., 2008). While social-emotional learning curricula, as discussed above, can help children develop the capabilities that promote positive relationships with teachers. However, since teachers are the ones implementing social emotional learning curricula, and because the classroom climate extends beyond the bounds of a social skills lesson, additional intervention is often needed to create an emotionally supportive classroom climate. Because interactions are the most proximal variable through which relationships develop, influencing how teachers speak and relate

to their students can have significant effects on overall classroom quality (Pianta et al., 2008). In addition, improving teacher ability to provide emotional support likely improves the quality of their social emotional teaching, which results in corresponding gains in student skills (Jennings & Greenberg, 2009).

Several features of effective interventions have been identified in the literature. First, professional development efforts that support the adoption of new educational practices must be sustained over time to allow for skill acquisition, must be directly tied to classroom practices, and must provide coaching and feedback on use of skills in the classroom context (Hughes, 2011; Landry, Anthony, Swank, & Monseque-Bailey, 2009; Pianta et al., 2008). Pianta et al. (2012) proposes four mechanisms by which teacher training can produce results: increased knowledge and understanding about the importance of interactions with students, emotional support for teachers themselves, provision of individualized feedback about actual interactions with students, and a specific target or goal on which to focus improvement efforts. Because teachers rarely receive sufficient training on behavior management and student social emotional development, they may enter the profession without the tools they need to form positive relationships with children; providing direct training in these skills can improve their ability to effectively deliver SEL curricula and manage student behavior in proactive ways that avoid hostility (Jennings & Greenberg, 2009). However, training alone has proved ineffective. Workshops involving only didactic components such as lecture, discussion, and practice scenarios are associated with limited change in teacher behavior (Casey & McWilliam, 2008; Gilbertson et al., 2007; Leach & Conto, 1999; Pianta, 2006; Simonsen et al., 2010).

Performance Feedback to Improve Classroom Practices

Recently, performance feedback has been identified as a consultation strategy that produces significantly better outcomes than training alone. Performance feedback refers to written, verbal, or graphical feedback regarding implementation of specific skills, strategies, or interventions based on direct observation with the goal of improving future implementation (Casey & McWilliam, 2008). Performance feedback has been used to improve teacher use of behavior-specific and contingent praise (Hemmeter et al., 2011; Jones et al., 1997; Martens, Hiralall, & Bradley, 1997; Reinke, Lewis-Palmer, & Martin, 2007; Reinke, Lewis-Palmer, & Merrell, 2008; Simonsen, et al. 2010), the integrity of academic interventions (Gilbertson et al., 2007; Noell, Witt, LaFleur, Mortenson, Ranier, & LeVelle, 2000; Noell et al., 1997; Noell et al., 2005), and implementation of behavior support plans (Noell, Duhon, Gatti, & Connell, 2002; Noell et al., 2005). In addition, performance feedback has been used to increase specific positive teaching practices, such as embedded teaching (Casey & McWilliam, 2008), positive interactions (Pianta et al., 2008), verbal expansion of student statements (Barton & Wollery, 2007), prompting pro-social behavior, and providing opportunities to respond (Simonsen, Myers, & DeLuca, 2010). Importantly, Coddington, Livanis, Pace, & Vaca (2008) found that performance feedback improves teacher practices regardless of whether an observer is present or absent; it is the feedback itself that produces improved outcomes rather than a reaction to being observed.

While written and verbal feedback tends to be primarily qualitative, graphical feedback relies on quantitative information to illustrate observation data (Casey & McWilliam, 2008). While verbal and written feedback are commonly used alone or in

conjunction with graphs, provision of graphical feedback even without verbal or written consultation appears to have positive effects on teacher behavior (Reinke et al., 2007; Reinke et al., 2008). Feedback may be delivered in person or via electronic means. However, time and staffing resources pose a significant hurdle to providing in-person performance feedback in the schools (Owens et al., 2014). Often, consultation sessions may occur only weekly resulting in long delays between the observation and receipt of feedback (Solomon et al., 2013). Immediacy of feedback is a significant factor in its effectiveness, ideally taking place just after observation or within 24 hours at most (Solomon et al., 2013). To eliminate scheduling constraints and speed the delivery of feedback, several studies have relied on electronically delivered performance feedback, either through a web platform or regular e-mail, with excellent results for both in-service and pre-service teachers (Barton & Wollery, 2007; Hemmeter et al., 2011; Pianta et al., 2008).

Context of the Current Study

A substantial body of literature has identified the social emotional context of learning as a significant factor in child outcomes. Social emotional learning enables children to develop the skills they need to work cooperatively, engage pro-socially with peers, and focus attention to produce high-quality work (Joseph & Strain, 2003). However, many children enter kindergarten without these skills that are so critical to school success (Rimm-Kaufmann et al., 2000). Without intervention, these deficits are likely to persist and put children at risk for low educational achievement, behavioral difficulties, and strained teacher-child relationships (Denham, 2006; Raver & Knitzer, 2002).

Kindergarten is a particularly critical time of transition, and may be the first opportunity that many children have for formal schooling (Rimm-Kaufman et al., 2000; West et al., 2001). Social emotional learning provides a means to explicitly teach the skills necessary for academic and social success (Zins & Elias, 2006). As a universal intervention, social emotional learning can reach all children upon school entry (Durlak & Wells, 1997; Zins & Elias, 2006). Although many social emotional learning curricula may be expensive, low-cost, evidence-based options such as *Strong Start K-2* are easily accessible to schools at all resource levels (Merrell, Parisi, & Whitcomb, 2009).

Social emotional learning curriculums are most effective as part of an emotionally supportive classroom climate (Zins et al., 2006). There is a clear link between social emotional learning and student-teacher relationships. First, the social and behavioral skills of children are a significant predictor of the relationships they form with teachers (Hamre & Pianta, 2001; Hamre & Pianta, 2006). Second, incidental daily interactions between teachers and students provide a key source of behavioral modeling, coaching, and observational learning (Pianta et al., 2003). Third, high quality teacher relationships have the power to build sufficient social emotional skills to mitigate demographic and functional risk factors and change the developmental trajectory of aggressive children (Berry & O'Connor, 2010; Hamre & Pianta, 2001). Fourth, teachers are most commonly the implementers of social emotional learning curricula and the quality of their delivery depends in part on their ability to manage the group, present the information with enthusiasm, and reinforce concepts throughout the school day (Hamre & Pianta, 2005; Jennings & Greenberg, 2009). Therefore, there is a pressing need to focus on teacher-child relationships as a universal intervention in conjunction with the

introduction of social emotional learning programs. Performance feedback provides one avenue through which teacher skills can be observed and improved and is a key component in sustainable school mental health systems (Casey & McWilliam, 2008; Han & Weiss, 2005).

This study examines the effects of a two-part intervention to improve teacher-child interactions. In the first intervention phase, teachers are trained on the importance of relationships and embedded social emotional teaching and instructed in how to implement a low-cost social emotional learning curriculum. In the second intervention phase, consultation with performance feedback is added to specifically target the number and nature of teacher-child interactions occurring in the classroom. The main focus of intervention in this study is neither the delivery of the social emotional learning curriculum itself, nor child behavior; rather, it is the capacity of teachers to positively influence child behavior using techniques that are research-proven to lead to improved child outcomes. The social emotional learning curriculum in this study provides a model for teachers to learn how to talk to children about emotions, how to coach children through social situations, and how to recognize and build resilience in their students. This study seeks to provide insight into the effectiveness of a social emotional learning curriculum, both with and without performance feedback, to improve teacher-child interactions in high-need kindergarten classrooms.

CHAPTER 3

METHODOLOGY

Setting and Participants

The setting for this study was an urban elementary school serving kindergarten through third grades. The school houses three kindergarten classes, and all kindergarten classes participated in the study. Each class was comprised of both children with general education needs and special education needs. The school serves a population that is 85.2% Hispanic, 10.6% White, 3.2% African American, .4% Asian, and .7% multi-racial. The district as a whole is classified as a Level 4 district by the Massachusetts Department of Elementary and Secondary Education due to persistently low student achievement, inconsistent instruction practices, and inadequate staff capacity to support high needs students. At the time of the study, this school was not consistently using any social emotional skills curriculum. The school's enrollment at the time of the study was 284 students, with 72 kindergarteners between the three classrooms. Of these students, 70 were classified as "high need" students using the criteria set by the Department of Elementary and Secondary Education. High needs students include those with disabilities, English Language Learners, former English Language Learners, and students from low-income households.

Teachers were recruited for this study through the building principal and school psychology intern. In grade-level team meetings, the teachers had identified social emotional support as a primary area for focus and improvement. All participating teachers were white women. Teacher One indicated that she had been teaching for more than 15 years, Teacher Two indicated between 10 and 15 years of experience, and

Teacher Three indicated between two and four years of teaching experience. All kindergarten teachers consented to participate in delivering a social emotional skills curriculum and receiving performance feedback about their interactions with children. Teachers were required to refrain from using other formal social emotional learning curricula for the duration of the study. Each participating classroom received a copy of the *Strong Start* manual, a large mascot teddy bear, and poster-sized enlargements of handouts as teaching aids. At the conclusion of the study, participating teachers received a \$50 gift card in thanks for their efforts. *Strong Start* informational letters were sent home to parents of students to inform them that their children were participating in this program as part of the general education curriculum. Because this intervention was implemented as part of the general education curriculum in response to teacher concerns around social emotional functioning, parent consent was not necessary for participation in the curriculum. No student-specific data were collected.

Independent Variables

The intervention was comprised of two components. In the first phase of intervention, the primary investigator delivered a training to each teacher to provide foundational information about the importance of social emotional learning and emotional competence, the teacher's role in social emotional development, and how to use the *Strong Start* curriculum to support student behavior. This training was staggered according to the experimental design, and was delivered just before teachers began implementation of the *Strong Start* curriculum. The second component involved providing performance feedback on the teachers' use of emotionally supportive language and reinforcement of *Strong Start* ideas. The performance feedback phase occurred

during weeks 3-4 and 7-8 of the ten-week curriculum.

***Strong Start* Implementation**

Initial training. First, an initial training familiarized teachers with the essential concepts of social emotional learning in general, and *Strong Start* in particular. Training was highly structured to ensure fidelity of content, using a Powerpoint presentation.

Topics covered in training included:

- Background on the importance of social emotional learning, student-teacher relationships, and their association with concurrent and future behavior and achievement.
- Overview of the *Strong Start* curriculum, including evidence of effectiveness, outline of lesson topics and key features, and interactive exploration of the manual. A list of lessons and topics can be found in Appendix A.
- Explanation of the need to embed social emotional curricula in daily classroom life, including using consistent language, providing opportunities for practice, and referring back to curriculum lessons as a basis for social problem solving.
- Description of how warm and harsh child-teacher relationships influence social competence and learning readiness, presentation of sample scripts for emotionally supportive interactions, and examples and non-examples observed during baseline data collection.
- Opportunity to ask questions and practice using scenarios.
- Presentation of timeline for intervention and data collection, and reminder

of requirements for participation and implementation fidelity.

The components of teacher training were drawn from research on effective social emotional learning curricula and features of supportive classroom climates (Domitrovich et al., 2007; Greenberg et al., 2003; Joseph & Strain, 2003; Pianta & Stuhlman, 2004; Pianta et al., 2008).

Program implementation. Trainings took place on a Thursday or Friday afternoon, and teachers began implementing *Strong Start* the following week. *Strong Start* is a manualized social emotional skills curriculum consisting of 10 forty-minute lessons. The curriculum is developmentally appropriate, low-cost, and uses materials and literature that are readily available in the school setting (Whitcomb & Merrell, 2012). The goals of *Strong Start* are threefold:

- To prevent social and emotional problems by promoting social and emotional wellness in young children.
- To provide a feasible option for supporting social emotional skill development in a way that is acceptable to teachers.
- To be adaptable as both a universal prevention program and targeted intervention, based on the needs of students. (Merrell et al., 2009).

Strong Start instructional methods are consistent with those demonstrated to produce optimal skill development, including modeling, skill rehearsal, and role playing (Caldarella et al., 2009; Joseph & Strain, 2003). In addition, *Strong Start* offers specific suggestions for integrating new skills throughout the day to promote use of relevant skills in real-life situations, an important aspect of effective social emotional instruction (Greenberg et al., 2003; Hemmeter, Ostrosky, & Fox, 2006; Kramer et al., 2010). The ten

lessons included in *Strong Start* are focus on specific objectives and are delivered sequentially. A table of *Strong Start* lessons and objectives may be found in Appendix A.

Strong Start lessons took place twice per week over ten weeks. Each lesson was delivered in two parts to accommodate the attention span and schedules of kindergarten students. In addition, *Strong Start* offers two optional booster lessons, which were not included in this study. Implementation fidelity was informally assessed to ensure that students are receiving all components of each *Strong Start* lesson. Teachers were asked to complete an implementation checklist after the completion of each week's lesson to self-assess treatment integrity. Self-monitoring of *Strong Start* fidelity was intended to mimic typical conditions in which teachers might use the curriculum. The checklists, referred to in Whitcomb & Merrell (2012), were based on lesson components as described in the *Strong Start* manual. A sample checklist may be found in Appendix B.

Performance Feedback Procedures

Performance feedback was delivered via email using a method adapted from the Hemmeter et al. (2011) study of performance feedback to target descriptive praise. However, this intervention extended beyond praise alone and more broadly targeted positive and negative teacher-child interactions. In accordance with previous work, performance feedback emails contained several features:

- A positive opening statement
- Supportive feedback including quantitative data. Data for each of the subscales was represented graphically, and teachers were given specific feedback about items on which they scored well or poorly.
- Reiteration of constructive intentions

- Reminder about the importance of implementation fidelity of the *Strong Start* curriculum and a reminder to keep using self-monitoring checklists.
- Suggestions for including more positive teacher-student interactions and reducing negative interactions based on observed areas of strength and weakness.
- Confirmation of the next scheduled visit
- Request for response/acknowledgement of receipt
- Positive closing statement

The visual representation of data was an important component of the performance feedback intervention. Reinke et al. (2012) found that visual performance feedback, using only graphed data in the absence of any other consultative support, significantly increased intervention implementation. The system of performance feedback used in this study combined that of Reinke et al. (2007) and Hemmeter et al., (2011) and provided written consultative support with the aid of graphically represented data. Email feedback was used to avoid burdening teachers with additional scheduled meetings, allowing them to review feedback at a convenient time. To monitor receipt of feedback emails, teachers were requested to send a reply email acknowledging receipt. All performance feedback emails were sent on the same day as the observation they address, and teachers acknowledged 100% of feedback emails received.

Dependent Variables

Positive and negative interactions as observed between kindergarten children and their teachers were assessed through direct observation before and during intervention phases. The dependent variables were chosen to reflect negative and positive classroom interactions using the framework identified through previous research (Pianta, Hamre, &

Allen, 2012; Webster-Stratton, Reid, & Stoolmiller, 2008). Past work has identified three primary domains that comprise relationship quality: closeness/warmth, hostility/conflict, and dependence. However, hostility/conflict and dependency are often lumped together to form a more general construct of “relational negativity” (Hamre & Pianta, 2001).

Because child dependence on the teacher is more difficult to observe at the class-wide level, and has accounted for the smallest proportion of variance (4.3%) in previous work, this construct is not a focus of the present study (Hamre & Pianta, 2001). This study used warmth/affection and conflict/hostility as the primary markers of positive and negative relationships, respectively.

Webster-Stratton et al. (2008) used the Teacher Coder Impressions Inventory (TCI) as a pre-post repeated measure of positive and negative student-teacher interactions. Although the original measure uses a Likert scale to assess frequency, many items were easily adapted to a frequency count, making it well-suited for a single subject design as small changes are easily observed over time. In addition, the measure was designed to be used during brief observation periods, allowing it to be administered frequently. The adapted tool provided a dynamic measure for use in single-subject design research. Positive interactions were assessed using a subset of items from the Warm/Affectionate and Embedded Social Emotional Teaching sub scales of the TCI, while negative interactions were assessed with a subset of items from the Harsh/Critical sub scale (TCI; Webster-Stratton et al., 2008).

Warm/Affectionate Subscale

The Warm/Affectionate subscale of the TCI provides a brief measure of positive student-teacher relationships. This subscale is one of two used to measure positive

interactions in this study and addresses the degree of warmth and affection demonstrated in classroom interactions. The original subscale consists of eleven items, related to both teacher and child observed behavior and assesses the presence of each of ten items rated on a five-point scale from “Almost never” to “Almost Always”. Items on the warmth/affection subscale include “Teacher was physically affectionate to children” and “Teacher provided emotional stimulation (encouragement, increased self-esteem)”. Ratings are based on a 30-minute observation period. Internal consistency for the Warm/Affectionate Subscale of the TCI has been calculated with an alpha coefficient of .90. Inter-rater reliability is adequate with ICC= .67 (Webster-Stratton et al., 2008). Because this study used frequent repeated measures, a subset of items from this subscale was used to progress monitor interactions. A full list of items from the original scale, as well as items retained for use in the adapted tool, can be found in Appendix C.

Social Emotional Teaching Subscale

The Social Emotional Teaching subscale of the TCI provides a brief measure of a second dimension of positive student-teacher relationships. This subscale is the second of two used to measure positive interactions in this study and assesses how well the teacher embeds social emotional learning principles into everyday interactions. The original subscale consists of ten items, related to both teacher and child observed behavior and assesses the presence of each of ten items rated on a five-point scale from “Almost never” to “Almost Always.” Items include “Teacher used and encouraged feeling language” and “Teacher specifically taught prosocial behavior and prompted children to use it.” Ratings are based on a 30-minute observation period. Internal consistency for the Social Emotional Teaching Subscale of the TCI has been calculated with an alpha

coefficient of .84. Inter-rater reliability is adequate with ICC= .62 (Webster-Stratton et al., 2008). Because this study used frequent repeated measures, a subset of items from this subscale was used to progress monitor interactions. A full list of items from the original scale, as well as items retained for use in the adapted tool, can be found in Appendix D.

Harsh/Critical Subscale

The Harsh/Critical subscale of the TCI provides a brief measure of negative student-teacher relationships. It consists of 29 items in its original form, assessing teacher and child observed behavior on a five-point scale from “Almost Never” to “Almost Always.” Sample items include “Teacher threatened or delivered punishment for a transgression” and “Teacher showed anger, irritation, or frustration.” Ratings are based on a 30-minute observation period. Internal consistency for the Harsh/Critical Subscale of the TCI has been calculated with an alpha coefficient of .98. Inter-rater reliability is high with ICC= .83 (Webster-Stratton et al., 2008). As with the Warm/Affectionate Subscale, a subset of items was used to monitor progress in this domain. Given the extremely high internal consistency of the scale, a smaller proportion of the original items was included in the adapted tool. The reduced number of items enabled raters to focus their attention and improve accuracy of ratings. A full list of items from the original scale, as well as items retained for use in the adapted tool, can be found in Appendix E.

Procedures

Observer Training

Graduate students in school psychology collected all data for this study. In-person training was conducted to ensure accurate coding of the TCI items included on the

observation tool. For each item, an operational definition was provided to data collectors along with examples and non-examples of the behavior being measured. Data collectors were instructed to use a frequency count to indicate target behaviors. Data collectors watched videos of teachers working with young children in order to gain guided practice in the structured observation tool. After initial training, data collectors independently rated classroom videos and were considered accurate if their agreement with the primary investigator's ratings exceeded 80%. The structured observation tool and operational definitions of scale items may be found in Appendices F and G. Observers were not told what phase of the study teachers were engaged in and whether their data would be used to provide performance feedback.

Inter-Observer Agreement

Two raters were present for every third observation (33%). During reliability checks, the two data collectors simultaneously and independently recorded frequency counts using the structured observation tool. Inter-rater reliability was calculated using an overall agreement calculation and was found to be 92.6% for the positive interaction subscale (range: 80.6-100%) and 90.3% for the negative interaction subscale (range: 50%-100%). Cases of low agreement were attributable to the low overall rate of target behaviors. For example, the first observer marking two negative interactions and the second observer marking only one resulted in an agreement rate of 50%. Although this method is limited by the possibility of chance agreement, it is similar to what has been used in previous work (i.e. Hemmeter et al., 2011). To address some of the limitations of overall agreement, inter-rater reliability was also checked using Pearson correlation coefficients to determine strength of association between the two observers' data.

Correlations between the first and second rater were calculated at .97 for positive interactions and .99 for negative interactions.

Observation Procedures

Observations were conducted three times per week for each teacher. All observations took part during “Center Time” when students were engaged in free-play activities and the teacher was free to circulate the room. This unstructured time was selected to ensure maximum opportunities for social interaction between teachers and children. Occasionally, other activities occurred during this block such as class parties. Each observation lasted thirty minutes and teachers were informed at the beginning of the week what days were scheduled for observation. During observations, graduate student observers positioned themselves unobtrusively in the room in a location that allowed them to hear interactions between the teacher and children. As necessary, observers moved to different sides of the classroom as needed to stay within hearing distance and maintain line of sight. Observers were provided with a tally sheet and clipboard at the start of the observation, and were asked to note verbatim examples of interactions between the teacher and children. These examples were used to supplement performance feedback when the primary investigator was unable to be present for the entire observation.

Experimental Design

This study used a single-case ABCBC reversal design with multiple baselines to examine the effects of the interventions on teacher-child interactions. Three kindergarten classes participated in this study in a staggered design, allowing replication of observed effects within and across classes.

Phase One: Baseline

Prior to any training in *Strong Start*, data collectors observed all three classrooms using the measures described above during center time. Observations took place three times per week to gather a baseline understanding of the amounts of positive and negative student-teacher interactions are typical in each classroom prior to intervention. Baseline lasted two weeks for Teacher 1, four weeks for Teacher 2, and 6 weeks for Teacher 3.

Phase Two: *Strong Start* Implementation.

Phase Two began with the initial training of the *Strong Start* curriculum as previously described. Once trained, teachers were responsible for independent delivery of the curriculum. The experimenter was available to answer questions and provide consultation on the implementation of the *Strong Start* curriculum as needed outside of instructional time. One *Strong Start* lesson was delivered each week, divided over two sessions of approximately 25 minutes each. Teachers were trained to ensure that all components of the lessons were taught within the two sessions. Each teacher was provided with a checklist to self-monitor their implementation. Observations of student-teacher interactions continued to be conducted three times per week during center time to examine whether change in the relationships could be observed between students and teachers as a result of the use of the SEL curriculum in their classrooms. Each teacher spent two weeks in Phase Two, which allowed sufficient time for a pattern of interaction to develop.

Phase Three: Performance Feedback + *Strong Start*

Phase Three was defined by the addition of performance feedback. Teachers continued implementing *Strong Start* and self-monitoring of implementation fidelity.

Observations of student-teacher interactions continued to take place three times per week. During this phase, teachers received an email after each observation including a graphical representation of total positive and negative classroom interactions, as well as specific information about areas where they performed well, and areas that could be improved. A sample performance feedback email can be found in Appendix H.

Phase Four: Withdrawal of Performance Feedback

During this phase, performance feedback was removed and teachers continued to be responsible for independent delivery of the SEL curriculum. The experimenter continued to support the implementation of the curriculum through informal consultation as needed outside of instructional time. As in all other phases, *Strong Start* was delivered at a rate of one lesson per week, divided over two sessions of approximately 25 minutes each. Teachers were again reminded to ensure that all components of the lesson were included within the two lessons and continued to use the checklist to self-monitor their implementation. Observations continued to be conducted three times per week during center time to examine whether there was a change in the interactions that are observed between students and teachers as a function of the removal of the performance feedback.

Phase Five: Reintroduction of Performance Feedback.

Phase Five returned to the full comprehensive intervention with classroom teachers implementing *Strong Start*, with thrice weekly observations and performance feedback on the student-teacher interactions that are observed. As in Phase Three, teachers received an email after each observation that included a graphical representation of positive and negative classroom interactions, with specific information about specific areas where they performed well, and areas that could be improved

Maintenance Phase

Two additional data points were collected after all interventions had ceased to establish whether changes in behavior were sustained over time. These data was collected two weeks after the teacher had completed all *Strong Start* lessons and four weeks after the last performance feedback sessions.

Data Analyses

Data were first analyzed using visual analysis, which is the most common method of assessing single subject data (Brossart, Parker, Olson, & Mahadevan, 2006). Visual analysis involves inspecting graphical data for changes in level, trend, and variability across intervention phases (Kazdin, 2011). However, while visual inspection is very useful to holistically assess data sets, it carries a risk of subjectivity and is often less accurate in detecting small to moderate effects (Parker & Brossart, 2006). Therefore, this method is often supplemented by statistical techniques to quantify change across data phases (Kazdin, 2011; Parker et al., 2005). These statistical methods allow comparison of data across studies and contexts and are particularly helpful in accurately assessing data without a stable baseline (Parker et al., 2005).

Common methods of evaluating single case data involve assessing the degree of non-overlap between data points in different phases (Parker & Vannest, 2009; Parker, Vannest, Davis, & Sauber, 2011). However, simple non-overlap methods have several disadvantages. First, ceiling effects are inherent in calculating percentages of non-overlap; two vastly different data sets may result in 100% non-overlap (Parker et al., 2011). Second, single case data is frequently auto-correlated and does not meet the standard of serial independence (Parker et al., 2011). Third, non-overlap measures are

insensitive to data trend (Kazdin et al, 2011; Parker et al., 2011). If the data follow a positive trend during baseline and continue this same trend during intervention, non-overlap may be calculated at 100% even if the intervention had no effect.

Tau-U has been proposed as an alternative to traditional measures of non-overlap. As opposed to non-overlap methods, which detect separation across phases, Tau-U yields an effect size describing the strength of the association between intervention and target behaviors (Parker & Brossart, 2006). Effect sizes are well-suited to single case research as they are largely unaffected by sample size (Parker & Brossart, 2006). Tau-U is a hybrid analysis model, derived from Mann-Whitney U and Kendall Rank Correlation, that assesses both trend and non-overlap simultaneously (Parker et al., 2011). Mann-Whitney U, which provides a measure of level differences across phases by using cross-group ranking and pairwise comparison of scores across phases. Kendall Rank Correlation (KRC) involves pairwise comparison of time-ordered data to assess for positive, negative, or neutral data trends (Parker et al., 2011). Essentially, KRC assesses the tendency for scores to improve over time without intervention. Therefore, Tau-U provides an index measure of four metrics: between-phase non-overlap, non-overlap and baseline trend together, non-overlap with baseline trend controlled, and non-overlap and intervention trend with baseline trend controlled (Parker et al., 2011). Tau-U combines the advantages of both regression models and simple non-overlap while remaining free of the assumptions of data distribution inherent in parametric model; it is robust for auto-correlated data and lacks the ceiling effect common to simple non-overlap techniques (Parker et al., 2011). However, this technique should be used in conjunction with visual analysis, particularly in complex designs such as in this study, rather than in isolation

(Parker et al., 2011).

To avoid overstating positive results, this study used baseline correction only when baseline data patterns showed desirable trend. Undesirable trend and neutral trend baselines were left uncorrected. To ensure clarity and consistency, negative interaction results were adjusted such that positive effect sizes indicate progress toward target behavior (e.g. reduction in negative interactions) and negative effect sizes indicate regression away from target behavior (e.g. increases in negative interactions). Effect sizes were interpreted using Cohen's (1988) guidelines for small, medium, and large effects.

CHAPTER 4

RESULTS

Strong Start Implementation Fidelity

As described in Chapter 3, implementation of *Strong Start* was tracked through self-report checklists to mimic typical conditions under which social emotional curriculums might be used. All teachers turned in checklists reporting implementation for all ten core lessons of the curriculum. Significant variation in fidelity was observed. Teacher Two reported that 100% of components were fully implemented on all ten lessons. 100% of subcomponents were completed across lessons. Teacher One reported 100% of components were fully implemented on seven of ten lessons; one component (out of a total six to seven components per lesson) was partially implemented in the remaining four lessons, while the other components were fully implemented. Across lessons, Teacher One completed 98.1% of subcomponents. Teacher Three showed the lowest rates of fidelity; she reported no lessons in which 100% of components were fully implemented. All lessons contained at least some partially implemented components, as well as components that were not implemented at all. In many cases, incomplete lesson sections involved skipping interactive activities, such as discussing character's feelings after reading a book. Teacher Three reported completion of 71.0% of subcomponents. Rates of implementation can be found in Table One.

Positive Interactions

Teacher One

During the six baseline observations, Teacher One showed relatively high numbers of positive interactions (between 16 and 19 per 30-minute observation, $\bar{x} = 19.83$), but with

a slightly declining trend and some variability. Introduction of the *Strong Start* curriculum with didactic training showed no improvements; in fact, positive interactions were somewhat less frequent during this phase ($\bar{x} = 15.00$) and a slight downward trend was observed. Tau-U was calculated at $-.64$, between the baseline and first *Strong Start* intervention phase, indicating that positive interactions became less frequent during this phase. However, upon implementation of performance feedback, there was a clear change in both level and trend. Mean positive interactions during the first performance feedback phase were 26.83 per observation, with an obvious positive trend. This phase shows a large effect size of $.77$ compared to baseline and a very large effect of $.94$ compared to *Strong Start* alone.

When performance feedback was withdrawn, and only *Strong Start* was continued, the initial observation showed high levels of positive interactions, but dropped precipitously by the second observation. Although the mean was similar ($\bar{x} = 24.66$) to the performance feedback phase, a significant downward trend with variability was present in the data, with a small to medium negative effect observed ($-.38$). A small positive effect ($.22$) was observed between this second *Strong Start*-only phase when compared to baseline.

When performance feedback was reintroduced, there was again a positive level shift ($\bar{x} = 35.66$), though some variability was noted (an initial drop followed by subsequent recovery). For the second performance feedback phase, Tau-U was calculated at 1.0 compared to both baseline and the previous performance feedback withdrawal phase, a large effect in both comparisons. Follow-up observations indicated a significant drop in positive interactions with a mean of 23.0 per session.

Overall, the two *Strong Start* phases showed a small negative effect size of $-.21$ compared to baseline, while the performance feedback phases together showed a large overall effect size of $.89$ compared to baseline. Performance feedback phases showed a large overall effect size of $.83$ compared to *Strong Start*- only phases.

Teacher Two

Over twelve baseline observations, Teacher Two showed highly variable rates of positive interaction, ranging from 16 to 37 ($\bar{x}=22.92$). No clear trend is noted at baseline. After didactic training and with the introduction of *Strong Start*, data appear slightly lower than baseline ($\bar{x}=18.67$), but with a negative trend and an effect size of $-.43$, indicating a moderate negative effect after initial training and implementation.

With the introduction of performance feedback, this teacher demonstrated significant level and trend shifts, with mean positive interactions at 31.66. During this phase, data showed an obvious positive trend. Compared to the initial *Strong Start* phase, introduction of performance feedback resulted a large effect ($\text{Tau-U} = .89$). Compared to baseline, Tau-U was calculated $.69$, indicating a moderate positive effect.

Although a slight positive level shift occurred initially after removal of performance feedback ($\bar{x}=35.83$), the second *Strong Start* phase was marked with variability and the second half of the of the phase displayed a negative trend. Overall, this phase showed a moderate negative effect of $-.39$ compared to the previous performance feedback phase, and a moderate to strong positive effect size of $.79$ compared to baseline and

After re-introduction of performance feedback, a positive trend immediately resumed, although average positive interactions remain constant at $\bar{x}=35.83$. This phase

showed a negligible effect size of .06 compared to the previous performance feedback withdrawal phase and a large effect size of .86 compared to baseline. Two weeks after the completion of all interventions, follow-up observations indicated a significant decrease in the target behavior with a mean frequency of 24.0 across two observations.

Overall, the two *Strong Start* phases showed a small positive effect size of .18 compared to baseline, while the performance feedback phases together showed a large overall effect size of .77 compared to baseline. Performance feedback phases showed a moderate overall effect size of .47 compared to *Strong Start* phases for Teacher Two.

Teacher Three

Teacher Three showed low levels of positive interactions across 18 baseline observations, with counts ranging from 5 to 22, and a mean of 14.0 positive interactions per 30-minute observation. After initial didactic training and implementation of *Strong Start*, a downward level shift was observed with significant variability ($\bar{x}=11.0$). Overall, the trend was negative with a small spike at the end of the phase. This phase showed a small to moderate negative effect size of -.36 when compared to the baseline phase.

Immediate and rapid improvement was observed upon the introduction of performance feedback. This phase demonstrated a marked level shift and clear, consistent positive trend. Teacher Three averaged 28.83 positive interactions during this phase, and showed large effects of 1.0 compared to the initial *Strong Start* phase and .95 when compared to baseline levels.

When performance feedback was withdrawn, positive interactions remained generally higher than at baseline ($\bar{x}=20.67$), but showed a significant decline in level, increased variability, and an obvious downward trend. This performance feedback

withdrawal phase showed a moderate negative effect size of $-.56$ compared to the first performance feedback phase and a moderate positive effect size of $.44$ compared to baseline.

When performance feedback was re-introduced, Teacher Three again showed a dramatic jump in level and resumed an upward trend with reduced variability ($\bar{x}=31.5$), with a large effect size of $.78$ over the performance feedback withdrawal phase and 1.0 over baseline. At follow-up, results appeared to be poorly maintained at an average rate of 11.5 positive interactions across two observations.

Overall, the two *Strong Start* phases showed a very small effect size of $.04$ compared to baseline, while the performance feedback phases together showed a large overall effect size of $.97$ compared to baseline. Performance feedback phases showed a moderate overall effect size of $.88$ compared to *Strong Start* phases for Teacher Two.

Results Across Teachers

Descriptive statistics and effect sizes for all teachers across phases can be found in Table 2. Overall, teachers showed a decrease in positive interactions following didactic training and initial implementation of *Strong Start*, with an average effect size of $-.46$ compared to baseline. Negative trend was observed across participants in the initial *Strong Start* only phase. Introduction of performance feedback resulted in positive trend and level shifts for all teachers and an overall effect size of $.81$ compared to baseline and $.94$ compared to the initial *Strong Start* phase. Withdrawal of performance feedback showed mixed results. While two teachers showed some negative level shifts, one teacher slightly increased her overall level of positive interactions. However, all teachers showed increased variability and negative trends in the second half of the phase. Overall, teachers

showed a moderate positive effect of .50 compared to baseline and a small negative effect of -.18 compared to the previous performance feedback phase. Reintroduction of performance feedback resulted in meaningful gains, with all teachers showing positive level and trend changes. Effect sizes for this second performance feedback phase were large at .95 compared to baseline and moderate at .51 compared to the withdrawal phase. Across teachers, *Strong Start* only phases showed a very small positive effect size of .02 compared to baseline, while performance feedback phases showed a large positive effect of .88 compared to baseline. Compared to *Strong Start* only phases, performance feedback phases showed a medium to large effect of .73.

Negative Interactions

Teacher One

Over six baseline observations, Teacher One showed relatively low levels of negative interactions, ranging from 1 to 10 over the 30-minute observation ($\bar{x}=4.17$). With the introduction of didactic training and *Strong Start*, rates of negative interactions appeared to be dropping during the first two observations, but began trending upward for an overall mean of 5.83 during this phase and a Tau U value of -.11 compared to baseline, indicating a slight increase in negative interactions.

The addition of performance feedback showed meaningful level changes with a precipitous drop to zero levels of negative interaction halfway through the phase, for a mean of 2.17. Compared to the initial *Strong Start* phase, this phase showed a small to moderate effect size of .36. Compared to baseline, the first phase of performance feedback showed a small effect size of .27.

When performance feedback was withdrawn, a level shift was observed ($\bar{x}=6.0$).

This withdrawal phase showed an effect size of $-.75$ when compared to the previous performance feedback phase. This *Strong Start* only phase showed a moderate effect size of $-.55$, indicating higher rates of negative interaction compared to baseline.

Reintroduction of performance feedback immediately resulted in a downward trend in negative interactions, ending in zero levels as observed in the previous feedback phase ($\bar{x}=1.67$). The second phase of performance feedback a very large effect of 1.0 over the previous withdrawal phase and a moderate positive effect of $.69$ over baseline, indicating desirable behavior change in both cases. Two follow-up observations showed some maintenance of results, with a mean of 1.5 negative interactions.

Overall, the two *Strong Start* phases showed a small negative effect size of $-.33$ compared to baseline, while the performance feedback phases together showed a medium overall positive effect of $.48$ compared to baseline. Performance feedback phases showed a moderate overall positive effect of $.68$ compared to *Strong Start* phases for Teacher One.

Teacher Two

Over twelve baseline observations, Teacher Two showed decreasing rates of negative interactions, which required baseline correction in order to accurately interpret the results and reduce the risk of Type 1 error. Across baseline, mean frequency of negative interaction was 5.58 per 30-minute observation. After didactic training and beginning *Strong Start* implementation, negative interactions appeared to increase from the later baseline frequencies, although average frequency was slightly lower than the average during baseline ($\bar{x}=5.0$), due to the two elevated baseline data points. Tau-U for this phase was calculated at $-.47$ compared to the baseline phase with baseline trend

controlled.

During the first performance feedback phase, there was an initial spike in negative interactions followed by a rapid and consistent downward trend in negative interactions ending in two observations with no negative interactions ($\bar{x}=3.83$). This phase showed a small to medium effect of .36 compared to the previous *Strong Start* only phase. The very small effect of -.15 compared to baseline indicates a slight increase in use of negative interactions during this phase overall.

When feedback was withdrawn, rates of negative feedback stayed low for most of the phase, with some variability introduced by a spike mid-phase from 0 to 5. A medium effect size of .42 was observed compared to the previous performance feedback phase. Overall, there was continued improvement from baseline ($\bar{x}=1.0$) and a small effect size of .26 compared to baseline.

The final performance feedback phase showed continuing low levels of negative interaction, and a zero-rate during the last four observations ($\bar{x}=.5$). Tau U for this second phase of performance feedback was calculated at a very small effect of .03 compared to the previous withdrawal phase and a small to moderate effect of .38 compared to baseline. Two weeks after the conclusion of *Strong Start*, follow up observations indicated good maintenance of results, with an average of .5 negative interactions.

Overall, the two *Strong Start* phases showed an effect size of -.10 compared to baseline, indicating a slight increase in the use of negative interactions, while the performance feedback phases together showed an overall effect size of .11 compared to baseline, indicating a slight decrease in the used of negative interactions. Performance feedback phases showed a moderate overall effect size of .19 compared to *Strong Start*

phases.

Teacher Three

Teacher Three showed high levels of negative interactions across 18 baseline observations, ranging from 5 to 25 instances during a 30-minute observation ($\bar{x}=12.5$). Didactic training and the implementation of *Strong Start* showed a small initial level shift downward, but with an upward trend ($\bar{x}=9.0$), resembling negative interactions observed during baseline. Tau U for this phase was calculated at a small to moderate effect size of .37 compared to baseline.

The introduction of performance feedback showed a dramatic level shift with decreased variability in frequency of negative interactions ($\bar{x}=2.5$). This phase showed a large effect size of .86 over the initial *Strong Start* phase and of .96 over baseline.

During the performance feedback withdrawal phase, a higher degree of variability was observed along with a slight level change ($\bar{x}=4.17$). Compared with the previous performance feedback phase, there was a small to moderate negative effect size of -.31 indicating that negative interactions increased when performance feedback was withdrawn. Compared with baseline, this phase showed a large effect size of .81.

When performance feedback was reintroduced, a level shift was observed along with a downward trend ($\bar{x}=.83$). Zero-rates of negative interaction were observed during the last two observations in the second performance feedback phase. This phase showed an effect size of .75 over the withdrawal phase and 1.0 over baseline, indicating a large decrease in negative interactions in this classroom. Two follow-up observations indicated a mean rate of 2.5 negative interactions per observation two weeks after the termination of all interventions.

Overall, the two *Strong Start* phases showed an effect size of .58 compared to baseline, while the performance feedback phases together showed an overall effect size of .98 compared to baseline. Performance feedback phases showed a large overall effect size of .81 compared to *Strong Start* phases.

Results Across Teachers

Overall, teacher showed minimal decreases in negative interactions after didactic training and initial implementation of *Strong Start*, with an average effect size of .05 compared to baseline. Two of three teachers showed a positive trend in this phase, indicating increasing rates of negative interaction. Introduction of performance feedback resulted in decreased negative interactions as evidenced by negative trend and level shifts for all teachers and a moderate effect size of .40 compared to baseline and .53 compared to the initial *Strong Start* only phase. Withdrawal of performance feedback resulted in higher levels of negative interactions for Teachers One and Three, while Teacher Two continued to decrease negative interactions even without continued feedback. However, increased variability replaced the steady negative trends observed during the preceding performance feedback phase. Overall, this phase showed small effect sizes of .27 when compared to baseline and .21 when compared to the first performance feedback phase. Reintroduction of performance feedback resulted in additional improvement, with all teachers showing the desired negative level and trend changes. Effect sizes for this second performance feedback phase were moderate to large at .78 compared to baseline and moderate at .59 compared to the withdrawal phase. Across teachers, *Strong Start* only phases showed a very small effect with an effect size of .11 compared to baseline, while performance feedback phases showed a moderate positive effect of .55 compared

to baseline. Compared to *Strong Start* only phases, performance feedback phases showed a moderate effect of .56.

CHAPTER 5

DISCUSSION

The goal of this study was to evaluate how the use of *Strong Start*, a low-cost, teacher-delivered social emotional skills curriculum, would influence the frequency of positive and negative student-teacher interactions in a kindergarten classroom, with and without the addition of performance feedback. In addition, this study also investigated the degree to which changes were sustained when the performance feedback component was withdrawn. This study used a multiple-baseline reversal design (ABCBC) plus follow-up in order to determine intervention effects. This design controls against most threats to internal validity including history, maturation, statistical regression, and testing effects. Within the multiple-baseline design, each teacher serves as a comparison to the others since each teacher enters intervention phases sequentially. In addition, teachers completed both *Strong Start* Only phases and Performance Feedback phases, allowing comparison of results between these two levels of intervention. All kindergarten teachers participated in the study for the entire duration, eliminating the threat of selection bias and attrition and the design allowed duplication of results both within and across participants. Therefore, it is possible to infer that effects occurring across phases are the result of intervention rather than external factors.

Summary of Findings

Although I hypothesized that the implementation of the *Strong Start: K-2* curriculum would result in an increase of positive teacher-child interactions and a decrease in negative interactions, results from this study indicate that didactic training followed by implementation of the *Strong Start K-2* curriculum without performance

feedback did not elicit the predicted teacher-child interactions. However, these results must be interpreted with caution given the variability in implementation fidelity across teachers. Given this limitation, results of this study indicate interactions between children and teachers appeared to initially worsen slightly with the introduction of training and the new curriculum. Omnibus Tau-U for the initial *Strong Start* Phase was calculated at $-.46$ for positive interactions, indicating moderate decreases in this behavior, and at $-.05$ for negative interactions, indicating no discernable effects. These results were observed as a function of intervention phase, with the remaining teacher serving as a control each time one teacher entered a new phase.

As predicted, results do indicate that the use of performance feedback significantly increased positive interactions and decreased negative interactions. All teachers showed significant improvements in the target behavior with daily feedback, and these phases were universally marked by desirable trend in the data (positive trend for positive interactions, and negative trend for negative interactions). Results also suggest that performance feedback may increase effectiveness over time. Across teachers, Tau-U values for positive interactions average $.81$ between baseline and the first phase of performance feedback and $.95$ between baseline and the second phase of performance feedback. Though both phases showed large effects, continued improvement was observed with the reintroduction of performance feedback. Similarly, Tau-U values for negative interactions average $.40$ between baseline and the first phase and $.79$ between baseline and the second phase. Although only moderate effects were observed during the first phase, Tau-U values for the second phase of performance feedback approach large effects.

Some maintenance of improvements made through performance feedback were observed. Two of the three teachers showed significant regression in the quality of their interactions when performance feedback was withdrawn. Teacher Two, who did not show obvious level shifts, continued improving just after the withdrawal of feedback, but then began trending downward in her positive interactions with students. However, all teachers continued to show more positive interactions than were observed at baseline. Two of three teachers continued to show reduced rates of negative interaction compared to baseline, although Teacher One showed increased rates of negative interaction with students when compared to her baseline levels. During follow-up observations completed two weeks after the termination of all interventions, all teachers showed significantly lower rates of negative interaction, ranging from a 64% to 91% reduction in instances of negative interaction. Improvements in positive interactions were more poorly maintained, with follow-up results showing at best a 16% increase over baseline, and at worst a 22% decrease. Tau-U was not calculated for follow-up data due to insufficient data points. Although other studies have indicated that use of the *Strong Start* curriculum results in reduced conflict and increased closeness between teachers and preschool-age children, this study did not detect similar effects for the curriculum alone as it was used in this study. Upon introduction of the didactic training and initial implementation of *Strong Start*, all teachers showed reductions in their positive interactions with students while negative interactions remained largely unchanged over the two-week phase. Possible explanations for this finding will be discussed in the Limitations section below. However, this study does provide compelling evidence that an intervention combining classroom-based performance feedback with *Strong Start* results in significant improvements in

teacher-child interactions.

Performance feedback offers teachers a structured method for reflecting on their own behavior and gives concrete strategies for improvement. This type of intervention has consistently shown significant effects in changing teacher behavior even when other consultation methods have failed (Jones et al., 1997; Reinke et al., 2008). Essentially, performance feedback operates for teachers as embedded social emotional teaching operates for students. Performance feedback offers reinforcement of positive behaviors, replacement strategies for ineffective behaviors, guided practice, and explicit teaching using real-life examples observed in the classroom. This intervention included two distinct phases of performance feedback separated by a withdrawal phase. The second round of performance feedback appears to have produced additional improvements above and beyond the first two-week cycle. Effect sizes were strong in the first round of performance feedback, but were larger for the second round. This indicates that one two-week period of performance feedback was inadequate for teachers to realize their full potential in creating high-quality interactions with students.

Each of the three teachers in this study showed significant increases in positive interactions and decreases in negative interactions with the addition of performance feedback. On average, positive interactions during performance feedback phases occurred 73% more often than at baseline, while negative interactions were reduced by 78%. These figures provide clinical significance to this study's findings. However, some regression was seen when performance feedback was withdrawn; although interaction quality was higher than baseline, it did not remain as positive as during the performance feedback phases. Maintenance of benefits from performance feedback was varied. In

some cases, teachers were able to maintain positive interaction rates that were similar to, or even better than, those observed during the initial performance feedback phase. However, visual inspection of the data indicates that maintenance of skills continues immediately after the termination of performance feedback, and then begins to fall. While mean values may not change substantially, trend indicates that gains in positive interaction were not maintained across the two-week *Strong Start* only phase. When performance feedback was reintroduced, positive trend resumes and level shifts are observed. Follow-up data for positive interactions, gathered two weeks after the termination of all interventions, indicate rates approximating those at baseline with an apparent negative trend.

Maintenance was similar for negative interactions. During the withdrawal phase, two out of three teachers showed regression from data gathered during performance feedback. Although they still showed some days with extremely low rates of negative interaction, there was a higher degree of variability in their data. However, the third teacher showed continuing reduction in negative interactions even during withdrawal. All teachers showed consistently low rates of negative interaction when performance feedback was re-introduced, including days with zero-rates of negative interaction. These gains resumed the trend observed during the first cycle of performance feedback. At maintenance, all teachers showed significant reductions in negative interactions from baseline, indicating that this skill was maintained after two rounds of performance feedback. At follow up, an 83% reduction from baseline was observed which represents a significant and lasting positive effect in this domain.

Limitations

In considering the results of this study, several limitations must be considered. First, neither *Strong Start* phase allowed full examination of the curriculum's results as these observations took place during weeks 1-2 and weeks 5-6 of the ten-week curriculum. In addition, *Strong Start* is designed to be delivered and assessed as a complete unit. Lessons build upon each other and are not necessarily expected to result in linear effects for students. In this case, although it was delivered in the ten-week time frame, the first *Strong Start* only phase only allowed observations of effects from *starting* the curriculum rather than effects from *completing* it. This phase examined teacher behavior after didactic training and initial implementation of the curriculum, when teachers were still adjusting to the logistical difficulties of adding in a new instructional block. Despite voluntary participation, at least one teacher expressed some resentment at the need to teach social emotional skills as well as "everything else." These feelings may contribute to the initial decline in interaction quality observed during Teacher Three's first *Strong Start* only phase. Results from the second *Strong Start* phase are difficult to interpret due to potential carry-over from the initial phase of performance feedback. While small effects were present for positive interactions and moderate effects were present for negative interactions, it is impossible to conclusively determine whether any of these effects were from the curriculum alone, vestiges of skills learned during the previous phase, or some combination of the two. In addition, the curriculum is not designed specifically to improve teacher-child interactions although it has shown these effects in the past (Gunter et al., 2012). However, that study did examine pre-post effects after delivery of the entire curriculum.

The finding that implementation fidelity was highly variable across teachers is highly significant. Teachers were asked to self-monitor in order to mimic real-life implementation conditions; however, while one teacher reported that all ten lessons were implemented with complete fidelity, another reported that zero lessons were implemented with complete fidelity. Consistent with previous work, simply emphasizing the importance of intervention fidelity was insufficient to maintain proper implementation (Noell et al., 2005). Although performance feedback was provided for the target behavior of interaction quality, implementation fidelity of the curriculum suffered without similar feedback in its intended delivery. This variation in implementation fidelity undermines the power of the curriculum to make meaningful change in child or teacher behavior, which would lead to changes in interactions between the two. Interestingly, the teacher who reported complete fidelity was also the only teacher who showed continuing improvement in interaction quality once performance feedback was withdrawn while *Strong Start* continued.

Second, the frequent observations required for single subject research inherently limit the comprehensiveness of the observation tools used. Because teachers were assessed through frequent direct observation, it was not feasible for an observer to account for all components of high quality student-teacher relationships. The items included on the observation tool were drawn from the much larger and more extensive Teacher Coder Impressions Inventory (Webster-Stratton et al., 2008). Only selected items that could be observed in a frequency count were included in this tool, losing some of the flexibility of a Likert scale. Items such as teacher warmth, enthusiasm, tone, and body language were not assessed despite being important components included on other scales,

such as the CLASS (Pianta et al., 2012). These qualitative features can more adequately be assessed during thorough pre-test and post-test designs but are difficult to capture in the more brief, frequent assessments that comprise single subject research. Although items were carefully chosen to represent important domains of relationships, it is likely that significant components of the relationship were excluded from this study due to their more qualitative nature.

Third, although the withdrawal design allowed investigation of the two-component (performance feedback + *Strong Start*) comprehensive intervention and withdrawal effects when performance feedback was removed, it does create some confounds in attributing change to either or both components. As discussed above, the second *Strong Start* only/withdrawal phase may be influenced by carry-over effects from performance feedback. Similarly, it is impossible to completely separate the effects of performance feedback from those of *Strong Start*. While the data trends clearly show significant level and trend changes after the implementation of performance feedback, it is impossible to definitively state that these changes are not related to the groundwork established by implementation of the curriculum and didactic training. Past work has suggested that performance feedback is similarly effective with and without didactic training (Simonsen et al., 2010), but other work has shown that social emotional curricula do have the potential to influence relationships (Gunter et al., 2012). Data patterns certainly indicate obvious changes with the implementation of performance feedback, but the relationship between the two intervention components cannot be fully determined.

Fourth, this study deviated somewhat from a true multiple baseline design, which would have required a stable baseline for all teachers before proceeding to the

intervention phase. To allow completion of all phases before the end of the school year, a pre-determined number of observations for each teacher were completed during baseline. However, use of baseline correction in calculating Tau-U values helped control the risk of Type One error that might result from baseline trend. To avoid overstating results, baseline trend was corrected only when interactions were trending in a desirable direction (i.e. the same trend that would be expected after intervention.) However, because baseline trend was not corrected when data points were trending in an undesirable direction, effect sizes may under-represent the power of the intervention effects.

Fifth, this study indicated that gains for performance feedback are not well maintained after withdrawal of the feedback, particularly for positive interactions. Obvious and quick regression in positive interactions was seen in two of three teachers, and the remaining teacher began to show regression as the withdrawal phase continued. At follow-up, positive interactions had returned to near baseline levels with a negative slope. This is consistent with previous work showing instability and downward trend in performance after withdrawal of performance feedback (Noell et al., 2002). Noell et al. (1997) also found that teachers maintained intervention effects for two to four days before showing significant regression. Poor maintenance of results limits the practical utility of the intervention. However, this study did not use any kind of fading procedure to gradually reduce feedback provided to teachers and scaffold their maintenance of newly learned skills. Providing more gradual steps into independence might have yielded more lasting results; Noell et al. (2002) found that intermittent follow-up feedback was largely successful in maintaining intervention results although higher variability was observed when compared with regular, frequent performance feedback.

Sixth, this study focused exclusively on changes in teacher behavior as a result of the two-component intervention. However, child-level effects are perhaps the more salient outcome when considering any educational intervention. In the case of the social emotional learning curriculum, child level effects are the more proximal outcome measure, while improvements in teacher relationships may be considered a secondary benefit or a proximal result of improved child behavior. Teachers are often reinforced by seeing their students' gains, resulting in further improvements to their own practice (Landry, 2009). While this study does not itself examine these variables, previous work allows us to infer what child-level results could be reasonably expected. *Strong Start* itself has shown significant reductions in internalizing behaviors and increases in prosocial behavior and emotion knowledge for young children (Caldarella et al., 2009; Kramer et al., 2010; Whitcomb & Merrell, 2012). In addition, performance feedback around positive classroom management strategies has led to reduced disruptive behavior among students (Reinke et al., 2008).

Finally, this study is limited by threats to internal and external validity that are common in single case research in a practical setting. These results were gathered from three voluntary participants teaching the same grade level in the same school, and effects may not generalize to other populations. In particular, the voluntary nature of participation may have increased buy-in and willingness to change among teachers in this study when compared to teachers mandated to engage in consultation and social emotional learning. In addition, it is impossible to rule that teacher behavior changed due to observers' presence in the room. Teachers may not have shown the same increases in positive interactions and decreases in negative interactions outside of observation blocks.

However, a similar study of performance feedback compared observer-present conditions with observer-absent conditions (using a one-way mirror) and found that reactivity effects were not present (Coddling et al., 2008).

Contribution to the Research Base

Results from this study add to the growing research base showing performance feedback as a highly effective intervention strategy to change teacher behavior. This study provides replication of previous results supporting performance feedback using a robust single case design. All teachers showed large increases in their use of positive interaction strategies and reductions in their negative interactions when provided with simple, brief performance feedback. While past studies have shown similar results for increasing behavior specific praise and reducing reprimands and other teaching strategies, we are unaware of similar studies that have specifically targeted negative interactions as an area of change. This study demonstrates that it is possible to simultaneously prompt teachers to decrease negative interactions while coaching positive interactions as a replacement behavior, a finding that holds significance as high quality teacher-child interactions are closely linked to student outcomes (Pianta et al., 2003). The key dimensions of closeness and conflict are related to warm, positive interactions and harsh, critical interactions respectively (Hamre & Pianta, 2001). A large body of literature demonstrates that positive teacher relationships are related to concurrent and predictive decreases in externalizing behavior, school avoidance, and learning problems and higher rates of school attachment, pro-social behavior, and academic achievement (Curby et al., 2013; Hamre & Pianta, 2001; Hughes & Kwok, 2007; Ladd et al., 1999; Pianta & Stuhlman, 2004; O'Connor et al., 2011). Therefore, improvements in the interactions that

form the basis for student-teacher relationships is likely to lead to meaningful improvements in child outcomes.

This study also effectively used email as an alternative method of feedback delivery. This feature is important as scheduling and logistical concerns are often barriers to provision of ongoing feedback to teachers (Owens et al., 2014). Several studies have used online platforms for delivery of feedback, but they are typically more extensive and used additional aids such as video exemplars in addition to traditional performance feedback (Hemmeter et al., 2007; Pianta et al., 2008). One study did find results related to expanding on preschoolers' utterances, but targeted pre-service teachers with clear academic obligations to the observers (Barton & Wollery, 2007). Our work provides compelling evidence that simple electronically delivered performance feedback is an effective strategy to improve the practices of in-service teachers who desire to improve their classroom management and relationships with students.

In this study, performance feedback was used in conjunction with *Strong Start*, a low-cost social emotional learning curriculum, to improve teacher-child interactions. Although results were not seen from didactic training or beginning implementation of *Strong Start*, this finding highlights the need to support and supplement implementation of social emotional learning curricula with ongoing and embedded supports for teachers. Social emotional learning programs are not intended to operate in isolation, but rather as part of a school climate that models and encourages social skills being taught (Zins & Elias, 2006). While social emotional curricula have been shown to improve children's emotional and behavioral functioning, they may not always be adequate to produce fast or dramatic results in student-teacher relationships. Our results demonstrate how addition

of consultative support may increase environmental consistency around these skills and build a classroom climate conducive to pro-social behavior and improvement in teacher practices. In addition, our findings around result maintenance provide evidence of the need for fading of support rather than complete withdrawal, which has clear implications for practice.

While the implementation and effects of *Strong Start* alone were not the primary focus of this work, the varying rates of implementation fidelity are an important finding of this study. To mimic typical use of an SEL curriculum, teachers were responsible for independent delivery of the curriculum and self-report of components completed. All materials were prepared and provided, and the primary investigator was available to answer any questions at teacher request. Within this framework, rates of self-reported implementation fidelity ranged from very good to very poor, underscoring the necessity of monitoring treatment fidelity whenever assessing the results of an intervention. When implemented fully with high degrees of oversight in other work, *Strong Start* was shown to improve student-teacher interactions after completion of the full sequence of lessons (Gunter et al., 2012). However, the curriculum cannot be accurately assessed when implementation is poor, even by self-report. Fidelity has been reported as a concern even for the most structured programs, and findings of this study confirm the need to address implementation fidelity in order to produce maximum intervention effects.

Future Directions

Replication and expansion of this work is needed to fully examine how social emotional learning curricula impact student-teacher relationships, how performance feedback supports a healthy classroom climate, and how these interventions affect

students of various ages and demographics. This study examined kindergarten teacher volunteers in an urban district; therefore, this work would be strengthened by similar studies examining teachers of older children, teachers participating in mandatory staff development, and teachers in varying types of school districts. Because this work (as well as much related work) used a single subject design, many replications will be necessary before results can be generalized with confidence.

Additional work is also needed to determine how *Strong Start*, fully implemented over the full ten lessons, might lead to improvement in student-teacher relationships and classroom climate. Gunter et al. (2012) did find significant changes as a result of the curriculum alone for preschool teachers and children. Replication of these results at higher-grade levels would provide additional convincing evidence of the need to include social emotional learning curricula as part of universal instruction for all children. Currently, most evidence for SEL programs focuses on improvement in child skills and functioning rather than how the experience of delivering a curriculum changes teacher behavior. This study did not return conclusive answers to this question, and future work that isolates this variable more specifically is needed to ensure all benefits of SEL are fully understood. In future work, performance feedback may also be used with *Strong Start* implementation as the target behavior to ensure fidelity of implementation and teacher understanding of the key components of SEL. In addition, this study did not address the social validity of the curriculum. While other studies (Gunter et al., 2012; Kramer et al., 2010; Whitcomb & Merrell, 2009) have indicated high social validity, additional work should explore how useful and/or feasible teachers find the *Strong Start* curriculum as part of an intervention including performance feedback.

Currently, very few other studies rely on email to deliver performance feedback. Replication of this method of delivery would bolster the research base around performance feedback in light of the barriers to traditional consultation meetings. In addition, all teachers participating in this study were in their mid-20s to mid-30s and anecdotally reported high degrees of comfort with email. Additional work might target teachers in different age and backgrounds to ensure that this method retains effectiveness. In addition, future work should examine systems of fading performance feedback. Although improvements in negative interactions were largely retained, positive interactions showed clear regression when performance feedback was abruptly discontinued. One study has demonstrated a two to four day period of maintenance before any drops in performance (Noell et al., 1997). However, various schedules of fading should be investigated to determine how results may be retained with minimal financial and logistical cost to school personnel.

Although there is a strong theoretical basis to assume that changes in teacher behavior will lead to changes in child outcomes, additional work is needed to empirically demonstrate these changes from this variety of intervention. A wealth of group design research has conclusively demonstrated that students who experience positive relationships with teachers achieve better outcomes than those who experience negative relationships (Curby et al., 2013; O'Connor et al., 2011; Hamre & Pianta, 2001; Hughes & Kwok, 2007; Ladd et al., 1999; Pianta & Stuhlman, 2004). However, this work provides little insight into how incremental improvements in teacher's interactions with children over a short period of time might lead to improvements in child behavior. Additional work could extend this study using a similar design, but including dependent

variables of child problem behavior and child prosocial behavior. In addition, some work has shown that teachers are highly reinforced by seeing changes in their students' functioning (Landry et al., 2009); therefore, presenting this child-level data to teachers in conjunction with their own data might lead to even greater changes in their use of positive and negative interactions with children.

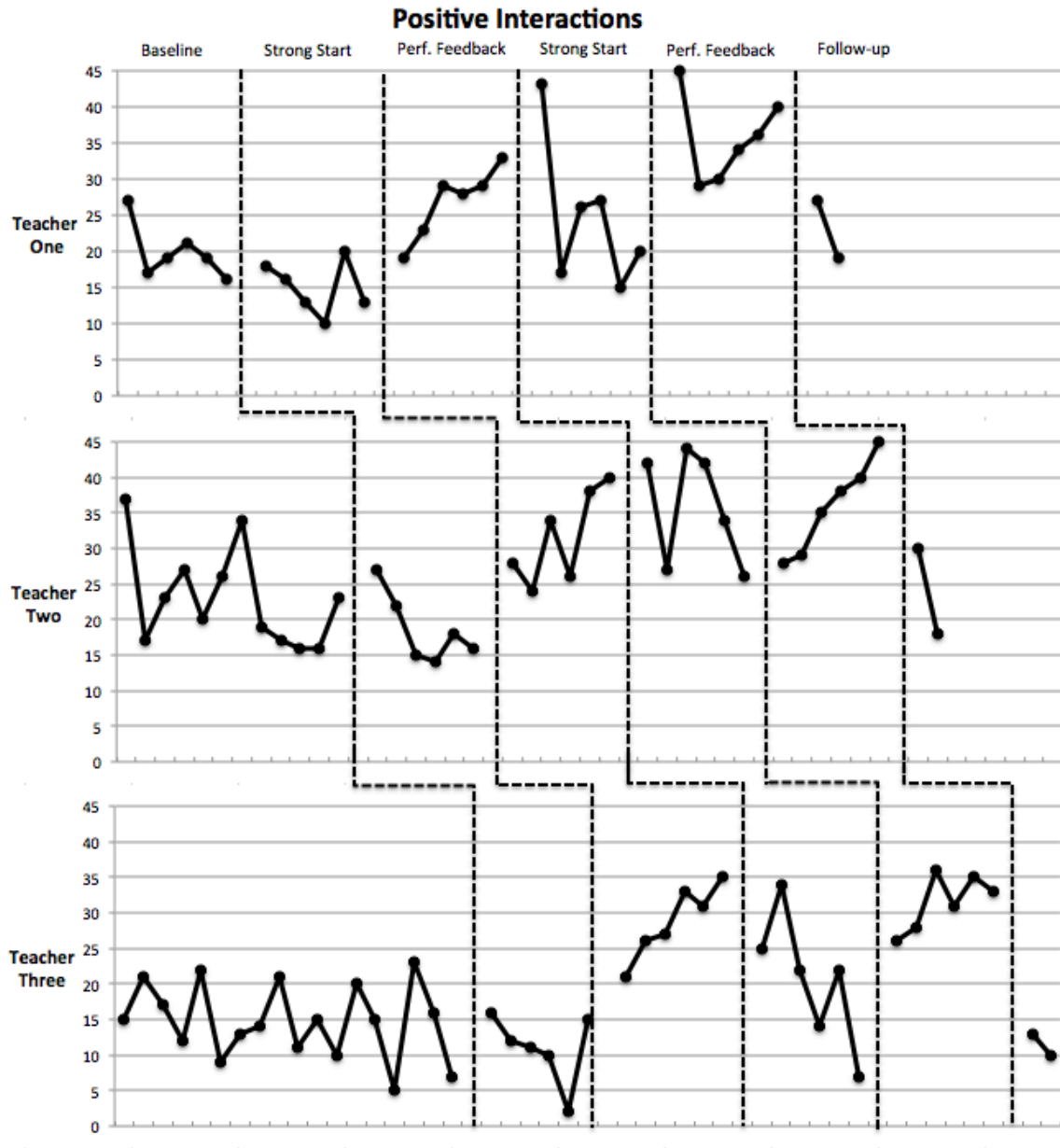
Table 1. *Strong Start Implementation Fidelity*

Lesson	Total Components	Components Fully Implemented	Components Partially Implemented	Components Not Implemented
<u>Teacher One</u>				
Lesson 1	6	6 (100%)		
Lesson 2	6	6 (100%)		
Lesson 3	8	8 (100%)		
Lesson 4	7	6 (85.7%)	1 (14.3%)	
Lesson 5	7	6 (85.7%)	1 (14.3%)	
Lesson 6	6	6 (100%)		
Lesson 7	6	5 (83.3%)	1 (16.7%)	
Lesson 8	7	7 (100%)		
Lesson 9	6	6 (100%)		
Lesson 10	3	3 (100%)		
<u>Teacher Two</u>				
Lesson 1	6	6 (100%)		
Lesson 2	6	6 (100%)		
Lesson 3	8	8 (100%)		
Lesson 4	7	7 (100%)		
Lesson 5	7	7 (100%)		
Lesson 6	6	6 (100%)		
Lesson 7	6	6 (100%)		
Lesson 8	7	7 (100%)		
Lesson 9	6	6 (100%)		
Lesson 10	3	3 (100%)		
<u>Teacher Three</u>				
Lesson 1	6	3 (50.0%)	3 (50.0%)	
Lesson 2	6	3 (50.0%)	1 (16.7%)	2 (33.3%)
Lesson 3	8	6 (75.0%)	2 (25.0%)	
Lesson 4	7	4 (57.1%)	2 (28.6%)	1 (14.3%)
Lesson 5	7	4 (57.1%)	2 (28.6%)	1 (14.3%)
Lesson 6	6	3 (50.0%)	2 (33.3%)	1 (16.7%)
Lesson 7	6	2 (33.3%)	2 (33.3%)	2 (33.3%)
Lesson 8	7	4 (57.1%)	2 (28.6%)	1 (14.3%)
Lesson 9	6	4 (66.7%)		2 (33.3%)
Lesson 10	3	2 (66.7%)		1 (33.3%)

Table 2. *Descriptive statistics and Tau-U effect sizes for dependent measures*

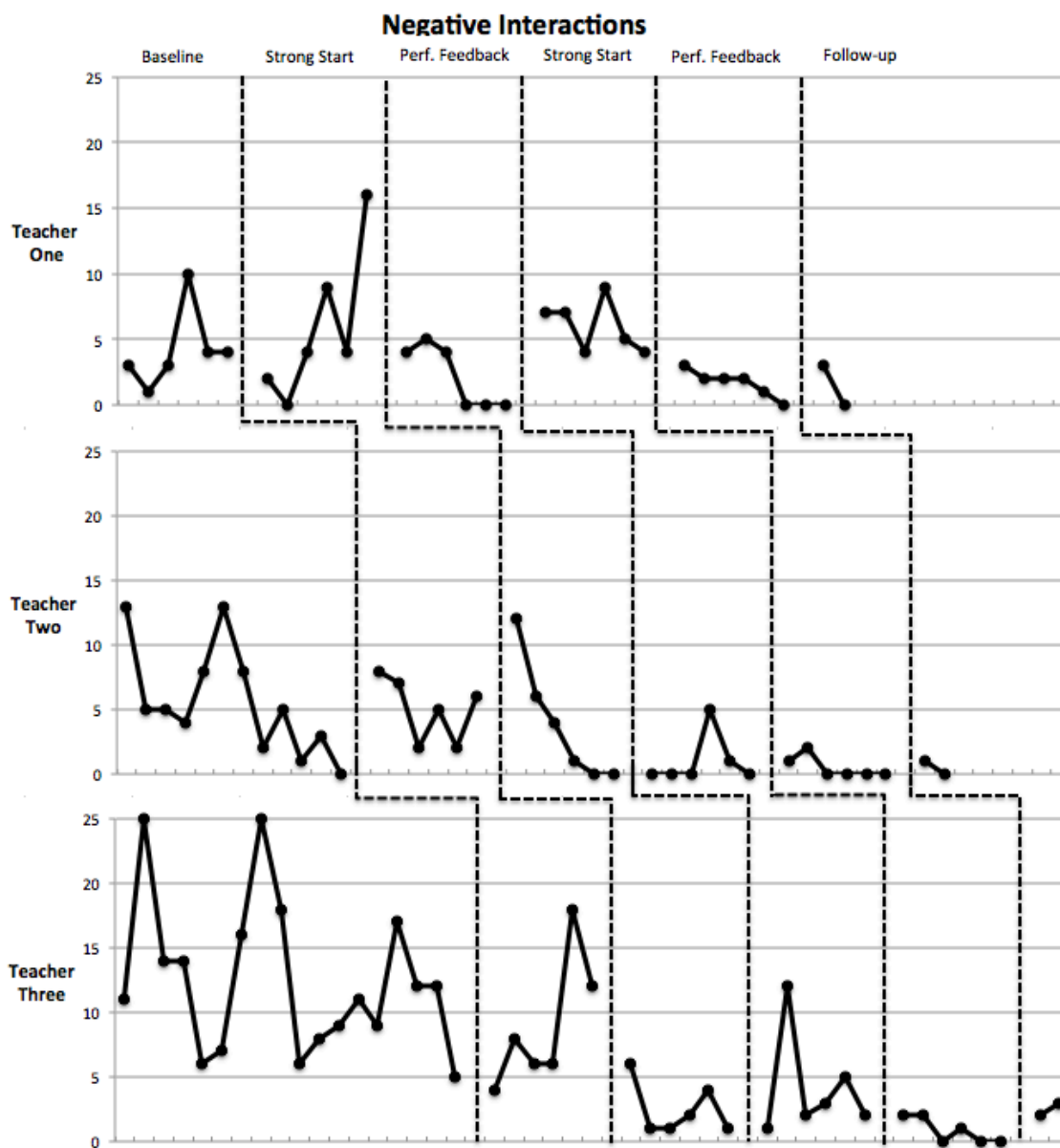
Dependent Measures	Baseline		Strong Start Only			Performance Feedback			Strong Start Only			Performance Feedback			Follow Up	
	Mean	SD	Mean	SD	Tau-U	Mean	SD	Tau-U	Mean	SD	Tau-U	Mean	SD	Tau-U	Mean	SD
Teacher One																
Positive Interactions	19.83	3.92	15.0	3.68	-.64	26.83	4.99	.78	24.67	10.17	.22	35.67	6.09	1.00	23.0	5.66
Negative Interactions	4.17	3.06	5.83	5.81	-.11	2.16	2.40	.28	6.00	2.00	-.55	1.67	1.03	.69	1.50	2.12
Teacher Two																
Positive Interactions	22.92	6.99	18.67	4.97	-.43	31.67	6.62	.69	35.83	8.01	.79	35.83	6.55	.86	24.0	8.48
Negative Interactions	5.58	4.23	5.00	2.53	-.47	3.83	4.67	-.15	1.00	2.00	.26	0.50	0.84	.38	0.50	0.71
Teacher Three																
Positive Interactions	14.77	5.25	11.0	4.98	-.36	28.83	5.15	.95	20.67	9.29	.44	31.5	3.94	1.00	11.5	2.12
Negative Interactions	12.50	5.94	9.00	5.17	.37	2.50	2.07	.96	4.17	4.07	.80	0.83	.98	1.00	2.50	5.18
Omnibus Effects																
Positive Interactions	18.33	19.00	14.89	5.37	-0.46	29.11	5.67	.81	27.06	10.88	.51	34.33	5.69	.95	19.50	7.77
Negative Interactions	8.81	6.20	6.61	4.78	-0.05	2.83	3.15	.40	3.72	3.43	.27	1.00	1.03	.78	1.50	1.38

Figure 1. *Frequency count of positive teacher-child interactions observed per 30-minute observation*



Negative Interactions

Figure 2. *Frequency count of negative teacher-child interactions observed per 30-minute observation*



APPENDIX A

STRONG START LESSONS (MERRELL ET AL., 2007)

1. The Feelings Exercise Group	Introduces students to the <i>Strong Start</i> curriculum
2. Understanding Your Feelings 1	Teaches students to name basic feelings
3. Understanding Your Feelings 2	Teaches students appropriate ways to express feelings
4. When You're Angry	Teaches students to manage anger and helpful ways of handling anger
5. When You're Happy	Teaches students to feel happy and to use positive thinking
6. When You're Worried	Teaches students to manage anxiety, worry, and fear
7. Understanding Other People's Feelings	Teaches students how to identify others' feelings
8. Being a Good Friend	Teaches students basic communication and friendship-making skills
9. Solving People Problems	Teaches students to solve problems with others
10. Finishing UP!	Reviews of major concepts in the <i>Strong Start</i> curriculum

APPENDIX B

SAMPLE CHECKLIST FOR TEACHER SELF-MONITORING OF *STRONG START*

FIDELITY

Implementation Checklist Lesson 1: The Feelings Exercise Group

When was lesson delivered?

Part One: _____ **Part Two:** _____

I. Introduction

Minutes: _____

- ☐ Explains to students that new curriculum will be started.
- ☐ Gives examples of what will be taught and importance to social and emotional health.
- ☐ Introduction to “Henry.”

Circle One: Not Implemented Partially Implemented Fully Implemented

Notes: _____

II. Defining Behavior Expectations

Minutes: _____

- ☐ Lists three rules for the group.
- ☐ Discusses importance of each expectation.

Circle One: Not Implemented Partially Implemented Fully Implemented

Notes: _____

III. Discussion of Confidentiality

Minutes: _____

- ☐ Shares that students can choose to share personal stories or not.
- ☐ Teaches students to tell stories without naming names.

Circle One: Not Implemented Partially Implemented Fully Implemented

Notes: _____

IV. Introduction to the Topics Covered

Minutes: _____

- ☐ Supplement 1.1 is used to introduce topics.

- ☐ Teacher orally reviews topics.

Circle One: Not Implemented Partially Implemented Fully Implemented

Notes: _____

V. Read a Book from Literature List

Minutes: _____

Book Title/Author: _____

- ☐ Characters' feelings and behaviors identified.
- ☐ Questions used to guide discussion.

Circle One: Not Implemented Partially Implemented Fully Implemented

VI. Closure

Minutes: _____

- ☐ Teacher reviews with students that they will be learning about life skills.
- ☐ Teacher reminds students about class rules.

Circle One: Not Implemented Partially Implemented Fully Implemented

Notes: _____

APPENDIX C

TCI WARM/AFFECTIONATE SUBSCALE

Warm/Affectionate Subscale

Items measured by the TCI Warm/Affectionate Subscale are listed below. Items retained for use in the adapted tool are in bold.

The teacher gave rationales (not lecturing, but simple, clear reasons) when appropriate.
The teacher tried to pleasantly tease, kid, or humor a child out of a sour mood.
Paid attention when children talked or asked questions.
Teacher was verbally affectionate to children (positive tone of voice, pet name, etc.)
Children were verbally affectionate to teacher.
Teacher was physically affectionate with children.
Children were physically affectionate with teacher.
The children seemed to enjoy the teacher's verbal rewards or encouragements.
Friendly relations between teacher and children.
Teacher was playful with children.
Children seemed aloof distant, or unattached to teacher (Scaling Reversed.)

APPENDIX D

TCI SOCIAL EMOTIONAL TEACHING SUBSCALE

Items measured by the TCI Social Emotional Teaching Subscale are listed below. Items retained for use in the adapted tool are in bold.

The teacher specifically taught prosocial behavior and prompted children to use it.
Problem-solved with children (prompted, modeled, coached, facilitated.)
Appropriate use of ignore. Proximal praise would be ignoring.
Discussed/planned a future activity near or far in the future in collaboration with children.
Teacher promoted emotional and social skill development by encouraging the children (through modeling, coaching, reinforcement) to try something new.
Teacher coached/shaped positive peer play through descriptive commenting, suggestions and praise.
Teacher used and encouraged feeling language (labels and describes a wide range of feelings.)
Teacher related positive comments about children to other children, teachers, adults.
Teacher provided emotional stimulation (encouragement, increased children's self esteem)?
Does the teacher do games, activities or songs to promote social competence?

APPENDIX E

TCI HARSH/CRITICAL SUBSCALE

Items measured by the TCI Harsh/Critical Subscale are listed below. Items retained for use in the adapted tool are in bold.

Teacher threatened punishment for a transgression
Teacher made unreasonable requests.
Teacher showed disapproval or criticized children.
Teacher used guilt induction to get compliance.
Teacher seemed to provoke children.
The teacher used sarcasm in a denigrating or hurtful way.
Did not pay attention when children talked.
Teacher enjoyed teaching. (Scaling Reversed)
Teacher showed anger, irritability, or frustration.
Teacher appeared depressed, sad, bummed out, tired, or had flat affect.
Teacher was physically aggressive toward children.
Teacher was physically intrusive toward children.
Teacher was patient with children (Scaling Reversed)
% of time teacher inappropriate.
Teacher positive and reinforcing (Scaling Reversed)
Teacher was overly strict, authoritarian, oppressive.
Teacher was consistent, even-handed, firm when necessary (Scaling Reversed)
Teacher tracked children too closely; hovered.

Teacher used nagging to get compliance.
Showed anger/hostility while disciplining.
Seemed to discipline children well. (R)
Teacher used child-directed approaches- responsive to children's needs and culture, flexible. (R)
Teacher seemed distant, detached from children.
Children seemed to fear teacher, were wary.
Teacher treated children with respect. (R)
Teacher seemed supportive and empathetic.
Teacher needed intervention.
Gut reaction to teacher (1-5, 1= felt really uncomfortable, 5= loved teacher)

APPENDIX F

STRUCTURED OBSERVATION TOOL

Item	Tally	Notes
Teacher taught prosocial behavior		
Teacher used and encouraged feeling language		
Teacher provided emotional stimulation		
Teacher was verbally affectionate to children.		
Teacher was physically affectionate to children.		
Children were verbally affectionate to teacher.		
Children were physically affectionate to teacher.		
Teacher threatened or delivered punishment.		
Teacher criticized children or showed disapproval.		
Teacher showed anger, irritation, or frustration.		

APPENDIX G

OPERATIONAL DEFINITIONS OF OBSERVATION ITEMS

1. Teacher specifically taught prosocial behavior behavior and prompted children to use it.

This item measures embedded teaching of prosocial behavior or prompts to use a previously taught skill. Tally this item when a teacher provides options to solve a problem, encourages children to brainstorm, explicitly pre-teaches appropriate behavior for a given situation, provides language to navigate a social situation, or otherwise scaffolds children's use of social or behavioral skills. Also tally this item if the teacher proactively models a behavior to remind children how to act (finger over mouth, hand raised, etc.). If this item occurs in conjunction with other items, tally both.

Examples:

"I see you look sad. Maybe you could ask BillyBob if you can play too."

"Two friends want the blocks right now. What are some ways we could solve this problem?"

"It looks like those words hurt Jessica's feelings. You could say, 'Excuse me' instead of 'Get out of my way.'"

"When I get up from the rug, I'm going to get a 1-2-3 second drink from the water fountain, then move over so another friend can have a turn."

"This morning we talked about some ways to calm down when we feel angry. Do you remember any of those ways?"

Non-Examples

"You need to calm down."

"Don't be greedy at the water fountain. Get your drink and line up."

"You need to play nice."

"Everybody line up so we can go to music."

2. Teacher used and encouraged feeling language.

This item measures the frequency with which the teacher labels and describes feelings in the classroom. This includes both his/her own feelings, the feelings of other children or adults, and future feelings that might result from a given course of action. Tally each statement that expresses feelings, encourages others to express their feelings, or speculates on future feelings. If this item occurs in conjunction with other items, tally both.

Examples:

"I'm really happy that you decided to come to circle!"

"Johnny, it looks like you're really angry right now. Would you like me to help you solve a problem or do you want some space first?"

“How do you think Janie would feel if we didn’t save her spot at Legos?”
“I can see from Stephen’s face that he’s really happy you shared with him.”
“I’m feeling sad that my friends are not listening to Jasmine’s sharing.”

Non-Examples:

“She’s not going to like that.”
“Do the right thing.”
“It’s about time you came to circle.”
“It’s time to sit quietly and listen to Jasmine share.”

3. Teacher provided emotional stimulation, encouragement, or praise.

This item includes praise and encouragement delivered directly to a child or children, as well as praise delivered to others about a child or children within their earshot. For this item, tally only praise for behaviors, not general compliments. Praise may be behavior specific or may include general praise statements that directly follow an instruction or response, making it clear what behavior is being praised. In addition to praise and encouragement, this item also includes any other comments intended to boost a child’s motivation and self-esteem. Encouragement and behavior specific praise may be verbal or non-verbal. Include class routines to encourage students volunteering answers or participating. In the case of co-occurrence with other items, tally both items.

Examples:

“This whole class worked so hard on their whale drawings, Mr. Peterson. Don’t they look beautiful?”
“Johnny, I noticed how careful you were to use gentle hands with our class pet. Thank you for taking such good care of him”
“Keep working on your short vowels. I know you can do it!”
Teacher gives a thumbs up after asking children to move quietly to the rug.
“Good answer.”
“Eyes on Dasia, let’s go Dasia!”

Non-Examples:

“They’re a pretty smart bunch, aren’t they?” [Code under verbal affection.]
“Johnny, keep working.”
“That was okay, but you can do better next time.”
Teacher repeats correct answer without evaluative praise (“That’s right!” “Great”)

4. Teacher was verbally affectionate to children.

This item refers to verbal expressions of warmth, positive regard, and closeness by the teacher toward students in the classroom. Verbal affection may be directed toward an individual student or toward the group as a whole. This item encompasses compliments, pet names, praise, and displays of interest in the child’s life. To be coded as verbal affection, there must be a clear positive tone and intention. Neutral greetings, even if pleasant, should not be tallied unless they convey clear affection for the child(ren).

Examples:

“You are all such smart kids.”

“I love that pretty pink hat you’re wearing today, Jessica!”

“Ella-bella, come have a seat at the table.”

“I’m so happy to see you today!” [Also code under feelings language.]

“How was your weekend, Jacob?”

“Good morning, brilliant mathematicians!”

Non-Examples:

“Ella, come have a seat at the table.”

“Good morning, class”

“Did you do your homework, Jacob?”

“Hang up your hat, Jessica.”

“I’m glad you’re not late today.”

5. Children were verbally affectionate to teacher.

This item measures the same constructs as item 1, but as shown by students toward the teacher. Verbal affection from children might include compliments, displays of interest, or clear declarations of affection. As above, to be coded as verbal affection, there must be a clear positive tone and intention. Neutral greetings, even if pleasant, should not be tallied unless they convey clear affection for the teacher or excitement at seeing the teacher. This item may also include enthusiastic overtures to share information with the teacher or show an object of pride.

Examples:

“Mr. Jones, I waited all weekend to show you this!”

“I like your dress, Mrs. Twinkletoes!”

“You’re my favorite teacher, Mr. Buttercup.”

“I missed you this weekend, Mrs. Gagnon.”

“I love Mrs. Smith, she’s so nice.”

“Profefer, I have a new folder!”

Non-Examples:

“My mom sent this note in.”

“Can I be next on your computer, Mrs. Buttercup?”

“Hi Mr. Jones.”

6. Teacher was physically affectionate to children.

This item tallies displays of approval and positive regard that are conveyed through physical gestures, including touch. Do not code circumstances where a teacher touches a student to preserve safety, solve a problem, or deter negative behavior. Do not tally circumstances in which a teacher touches a student and there is a visible negative reaction

on the part of the student (frowning, recoiling, squirming). Do tally instances where the teacher provides comfort using physical means. (If both verbal and physical affection are provided, tally both.)

Examples:

Mrs. Buttercup hugs Johnny after he falls on the playground.

Mr. Jones gives Joey a high five when he comes into the classroom.

Mrs. Twinkletoes places her hand on Jessica's back while helping her solve a math problem.

Mr. Bell offers Danny a hand to hold while they walk to gym.

Non-Examples:

Mrs. Smith ties Jessica's shoe.

Mr. McIntyre reaches out to catch Maria when she trips.

Mrs. McCorkle tells Danny to hold her hand when he is fooling around in line.

Mr. Bell claps his hands for quiet.

7. Children were physically affectionate to teacher.

This item tallies displays of positive regard and closeness conveyed through touch and other physical gestures. Do not code instances of aggressive, accidental, or purely functional physical contact, or any circumstances where the teacher responds negatively to the child's overture.

Examples:

Jessica gives Mrs. Buttercup a hug when she comes in from recess.

Juan snuggles up close to Mr. Jones to read a story.

Paul climbs into Mrs. Twinkletoes's lap during circle time.

Alex offers Mrs. Smith a fistbump to celebrate the completion of his homework.

Jessica takes Mrs. McCorkle's offered hand to walk in the hall.

Non-Examples:

Danny taps Mr. Jones on the shoulder to get his attention.

Annie trips over Mr. McIntyre's foot.

Paul complies with a direction to take Mrs. Twinkletoes' hand while walking in the hall.

Johnny sits still after Mrs. Buttercup comes to sit next to him.

8. Teacher showed disapproval or criticized children.

This item measures how frequently the teacher shows negative regard for children in the classroom, as evidenced by disapproving or critical behavior. This behavior may be verbal or non-verbal. Do not tally instances in which the teacher provides constructive corrections or instructions. Positively phrased, calmly delivered discipline should not be counted for this item. Instead, tally only instances in which the teacher's behavior is critical rather than constructive and positively phrased. This item includes comments made about a child to others if children are possibly within earshot.

Examples:

Jessica spills the paint during centers and Mrs. McCorkle rolls her eyes and sighs.
Paul keeps whispering to his neighbor during reading and Mrs. Twinkletoes says “You two are old enough to know better.”

“Johnny is keeping us from going outside because he won’t put his boots on.”

“Juan, stop that and be a good boy.”

“Don’t do that.”

Non-Examples:

“Jessica, grab the paper towels so we can clean up the paint!”

“I hear whispering at this table. Let’s make our mouths quiet so we can do our reading.”

“Johnny, that’s not safe. Put your feet on the floor so you won’t fall.”

“Lots of friends have been forgetting their reading folders. When you go get your backpack, look inside and make sure your green folder is in it.”

9. Teacher threatened or delivered punishment for a transgression

When scoring this item, it is important to distinguish between punishment and logical consequences. Logical consequences are a respectful way for teachers to help children repair damage done by misbehavior. There is no element of shame in logical consequences, and they are delivered calmly with a focus on the problematic behavior rather than the child him/herself. Punishment is not directly tied to the problematic behavior and may carry an element of shame. An angry or punitive tone indicates punishment rather than logical consequences, even if the punishment is otherwise appropriate. For this item, threat of punishment is sufficient to tally the item even if the punishment is never carried out. Delivery of punishment without warning should also be tallied here.

Examples:

“If you don’t stop talking, I’m going to send a note home to mom.”

“Fine, you lose ten minutes of recess. I’m not going to tolerate this.”

“If I see anyone out of line, they’re going straight to the principal’s office.”

“Do you want me to take away your show and tell?”

Non-Examples

“Jessica, your desk has to be cleaned up before we go home for the weekend. Make sure you clean it up before snack so you don’t have to do it during recess.”

“I just saw you hit Frankie. I need you to sit here with me for five minutes so that I know you can be safe on the playground.”

“Friends who follow our rules during snack will earn an Apple Ticket.”

“Boys, if you keep talking during reading I will have to move you to different ends of the table so you can focus better.”

10. Teacher showed anger, irritation, or frustration.

For this item, tally each instance in which a teacher conveys these negative emotions through verbal or non-verbal means. This behavior may occur in conjunction with another item; in this case, tally both items. Do not tally other emotions such as surprise, or any emotions expressed out of earshot of children. One stretch of irritation, anger, or frustration may last for several minutes; in this case, tally each statement or gesture that indicates the negative emotions. Tally each statement or incidence of behavior that conveys the negative emotion.

Examples:

Teacher rolls eyes or sighs loudly.

Teacher raises his/her voice to discipline a child.

Teacher uses inappropriate sarcasm with children.

“I’m so tired of this.”

“I’ve told you all a thousand times to stop running. Now stop!”

Non-Examples:

Teacher raises his/her voice to preserve safety of a child or prevent a clearly dangerous situation.

Teacher holds a class meeting about a difficult day, expresses concern calmly and without heat.

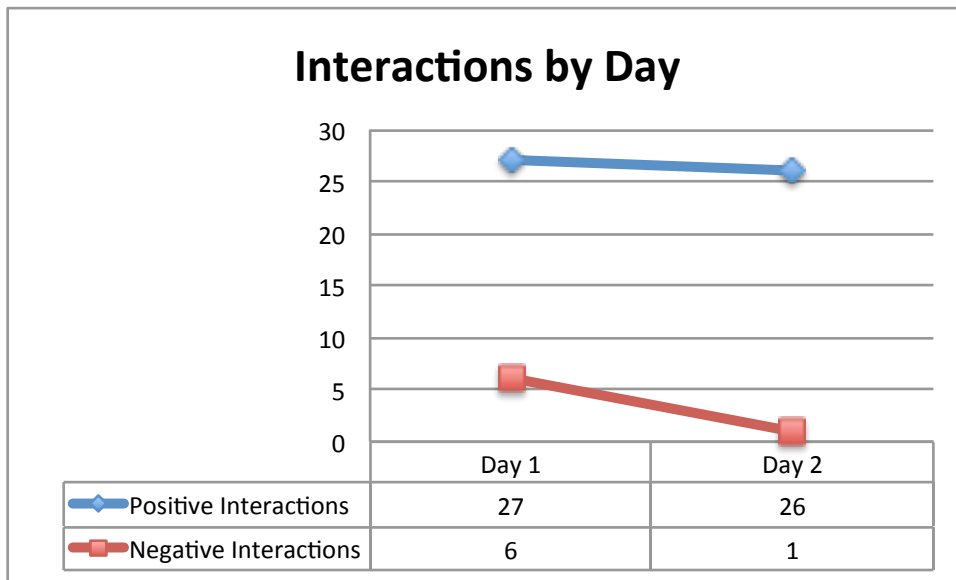
Teacher looks harried or tired without a display of anger, irritation, or frustration.

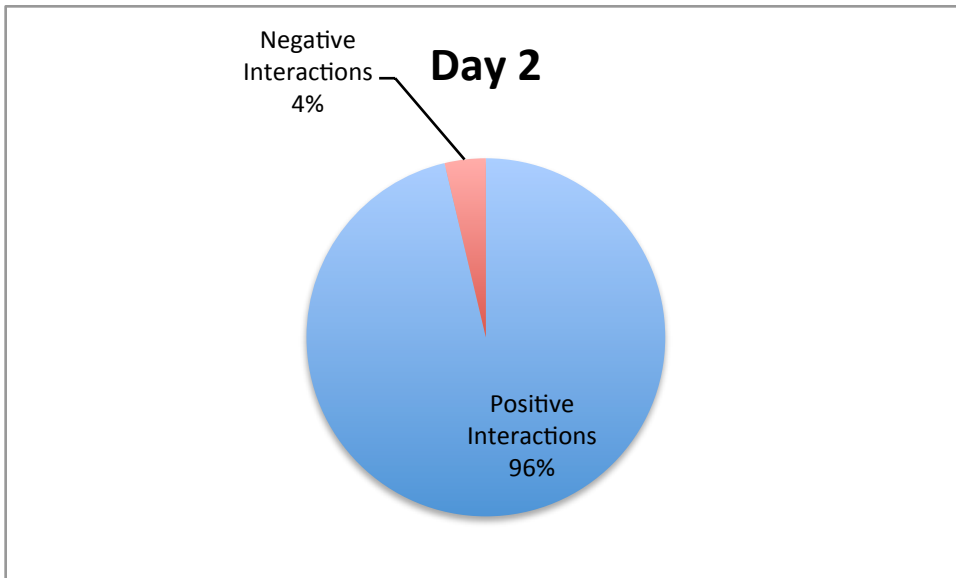
APPENDIX H

SAMPLE PERFORMANCE FEEDBACK EMAIL

Hi [Teacher Three],

The kids seemed to love the bracelet center today- it was really nice to see how engaged they were. Things looked great again today. I noticed that you were using a lot of the language from the *Strong Start* curriculum and looking for ways to keep things positive even when correcting behavior. In particular, you didn't dwell on the previous problems with the easels, but just said, "I'll show you how to use them and we'll try again." I also loved the language you used with [Student] when he chose to move his picture rather than making [Student] move out of his seat- you told him, "Thank you for moving that so [Student] could sit there. That was really responsible." You can see in the graphs below that I observed 26 positive interactions and only 2 negative interactions:





As you can see, your proportion of negative interactions was way down today- only 4%! That's a big difference for the climate of your classroom. I have two suggestions for today. At one point, I heard you ask [Student] "Are you being a good friend?". This is a good question to ask, but I think he and others may need a review of what a good friend is. Being really explicit and saying, "Remember what good friends do. They take turns, they use gentle hands and kind words. Are you being a good friend?" might help them be more successful. I have also noticed that sometimes you will try to settle them by saying "Shhhh." I wonder if it would be more effective to give specific directions like "It's too loud. I need friends to have their eyes on me and their mouths quiet." I think sometimes kids start to tune out things they hear frequently, like "Shhh" and it might help them to hear the directions again.

Overall, things are looking really good in your room and I love how you are incorporating *Strong Start* concepts through your day. I just need two things from you:

1. A quick reply email that you received this
2. Some time(s) that it might work for me to observe on Thursday of next week (before break, since it's a half day). If it can't be during centers, that's okay for one day- just a time when they're working in small groups and you have a chance to interact with them would be great.

Thanks so much, [Teacher Three]! See you tomorrow.

[Primary Investigator]

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